THE ENGINEERING AND MINING JOURNAL.

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NOTE.—Communications relative to the editorial management should be addressed to Mr. ROTHWELL. The articles written by Mr. Raymond will be signed with a star.

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WASHINGTON MEETING OF THE INSTITUTE OF MINING ENGINEERS.

THE selection of the National Capitol for the winter meeting of the Institute of Mining Engineers was very judicious. Some seventy or eighty members were in attendance, and of new members some seventy-five or eighty were elected. The membership of the Institute is now approaching 600, and is the largest, we believe, of any technical society in America.

We shall next week publish a list of the new members, and of the papers read, and give the official report of the meeting. In order to show the interest taken in the Institute, as well as the judicious selection of its officers, we may mention that of the six Vice Presidents in the council, five were present at the council meetings. Seven out of nine of the Managers were present, and of the two absentees, one was prevented by illness and the other, through a temporary business call to the Pacific Coast. from coming.

Among the members present at the meeting we note the following :

ASHBURNER, CHAS. A., Philadelphia.
ASMUS, GEO., New York.
BILLIN, CHAS. E., Philadelpia.
BIRKENBINE, JOHN, Philadelphia
BLAKE, Prof. W. P., New Haven Conn.
BORDA, E., Philadelphia.
BOYER, J. L., Temple, Pa.
BRAMWELL, J. H., Quinnemont, W. Va.
BUCK, S. M., Coalburgh, W. Va.
CHURCH, Prof. J. A., Tarrytown, N. Y.
CLAYTON, JAS. E., Ore Knob, N. C.
COGSWELL, W. B., Mine La Motte, Mo.
CORYELL, MARTIN, Richmond, Va.
COXE, E. B., Drifton, Pa.
COXE, W. E. C., Reading, Pa.
DE CAMP, W. S., Boonton, N. J.
DE SAULES, A. B., Orange, N. J.
DRESSER, CH. A., Brooklyn, N. Y.
DRINKER, H. S., Philadelphia.
DUDLEY, P. H., Cleveland, Ohio.
DUTTON, Cap. C. E., Washington D. C.
EILERS, A., New York.
EGLESTON, Prof. T., New York.
FABER DU FAUR, A., New York.
FIRMSTONE, H., Easton, Pa.
FIRMSTONE, F., Longdale, Va.
FISHER CLARK, Trenton, N. J.
FRAZER, Prof. P. Jr., Philadelphia.
FRAZIER, Prof. B. W., Bethlehem, Pa.
HARRIS, Jos. S , Pottsville, Pa.
HEINRICH, O. J., Midlothian Colliery, Va.
HEWITT, A. S., New York.
HOLLEY, A. L., New York.
HUNT, Prof. T. STERRY, Boston, Mass.
HUNT, R. W., Troy, N. Y.
KENT, Jos. C., Phillipsburg, N. J.
KIMPTON, C. W., Newburyport, Mass.
MALTBY, W., Bradwood, Ill.
MICKLEY, Hokendauqua, Pa.
NEILSON, W. G , Philadelphia.
NICHOLS, Ed., Tarrytown, N. Y.
PARDEE, I. P., Hazleton. Pa.
PARSONS, C. O., Steel Works, Dauphin Co., Pa.
PEARSE, J. B., Philadelphia.
PLATT, J. C., Waterford, N. Y.
PRIME, Prof. F. Jr., Easton, Pa.
RANDOLPH, J. C., New York.
RAYMOND, R. W., " "
REYNOLDS, G. H., " "
RICKETTS, P. DE P., " "
ROEPER, C. W., Bethlehem, Pa.
ROTHWELL, R. P., New York.
SHINN, W. P., Pittsburgh, Pa.
SILLIMAN, Prof. B., New Haven, Conn.
SMITH, DAVID, Washington, D. C.
STOCK, Prof. J C., New Brunswick, N. J.
TAYLOR, W. J., Chester, N. J.
THURSTON, Prof. R. H., Hoboken, N. J.
WALKER, J. BRISBEN, Washington, D. C.
WHITING, S. B., Pottsville, Pa.
WURTZ, Prof. H., Hoboken, N. J.
YOUNG, C. A., Philadelphia.

The Meeting was large, the members in attendance being among the most distinguished representatives of the great industries whose progress forms the object of the Institute ; the papers read were able and full of interest. The objects of interest, in and near Washington were numerous, and to many of the members, new, and the magnificent weather afforded an agreeable opportunity for their inspection.

On the whole it has been one of the most agreeable and profitable of the meetings of the Institute, all of which have been characterized by these features. So pleasant and instructive have these meetings become, that we are not so much surprised at the large attendance of members, as we are that any absent themselves.

We give herewith the welcoming address by that Father of American Science, the distinguished and venerable Prof. JOSEPH HENRY. Next week we shall give President HOLLEY's address, one characteristic of the progressiveness and sound practical judgment of this able engineer.

Mr. President and Members of the American Institute of Mining Engineers :

It gives me much pleasure to welcome you to Washington and to the Smithsonian Institution. It is the policy of this establishment to affiliate itself with every enterprise which has for its object the advancement of science and the improvement of art. I have only to regret that we cannot offer you better accommodations. The increase of the National Museum has been so rapid of late years as to leave no space for the proper accommodation of societies and associations which may from time to time visit the city, but as a larger building will soon be required for preserving and exhibiting the Government specimens, arrangements will be made in this for public rooms of more ample dimensions than the one in which you are now assembled.

I am glad to see that you have seen fit to visit Washington in your annual meetings, and I doubt not you will go away with the impression that this city is rapidly becoming a center of power, of intelligence and refinement worthy of the Capital of the Nation. You will see that its distances, ironically called magnificent, are being filled up with imposing buildings, and be assured that its hopes, hitherto called disappointed, are becoming realized.

I beg leave to congratulate you on your organization, and the results which it has produced as evinced by the first volume of your transactions. Associations of this kind are the most efficient means for advancing knowledge or promoting any enterprise, whatever may be its nature. Man is a sympathetic being. He requires the approbation of his fellow men, and when the united efforts of many are combined to one end, the effect is manifoldly increased. The solitary student, pursuing his investigations, is cheered and encouraged in his efforts, not only by the pleasure derived from the acquisition of knowledge and by the appreciation of those who are qualified to judge of the merits of his labors, but when one branch of science has become ripe for an application and is seized upon by hundreds of inventors, its progress is indefinitely increased. The stimulus of gain is added to that of reputation.

When to these again is added the power of numbers, or the result is manifested in the rapid production of multiform applications, it may be of a single principle.

In looking over your volume of transactions I have been struck with the variety and importance of your labors. The value of a body of well educated mining engineers, entrusted with the duty of developing the mineral resources of our country, can scarcely be too highly estimated. I say well educated, I mean by this, thoroughly imbued with the principle of abstract science, without which, the labor is not only frequently fruitless, but in many cases injurious. But on this point I need not dwell in addressing the audience which is now before me. Indeed, as my thoughts have only been casually directed in the line of engineering, I can say nothing which may appear new to you, although I may be allowed, perhaps, to make a few remarks on a subject of general interest, in the way of recalling your attention to it, and of enforcing its importance to the future of the world. I allude to the subject of motive powers.

The great difference between ancient and modern civilization consists, principally, in the vastly greater number of individuals who partake of the benefit of higher culture in the latter than in the former, and this difference is due to the fact that in ancient times the only energy employed in doing work for supplying man with the necessaries or luxuries of life, was that of muscular power, under a system of slavery, which pervaded the world. All the architectural monuments of which the remains have come down to modern times, are the product of slave labor, directed by the favored few, called freemen. In modern times man has become, in a great degree, relieved from brute labor, by substituting for his own muscular energy, the power of nature, and as this substitution is continually going on, so that the number of persons required to perform mechanical labor is every year diminishing in proportion to the whole number of inhabitants in every civilized country.

The powers which are now at the command of the engineer for doing work, are those of wind, of water, of tide, and of combustion. All these may be traced backward to the sun, with the exception of tide power in which the action of the moon is predominant. In the present day, science gives no indication of the existence of any other motors. The announcements frequently made, and which startle the public, of the discovery of new motors are unworthy of the slightest consideration ; they are generally the offspring of ignorance, and their authors, first deceiving themselves, finally attempt to deceive others.

It becomes a question of vast importance to the future whether the sources of power I have enumerated are inexhaustible. All analogy and the principles of science of the present day answer the question in the negative. The action of the moon on the waters may, it is true, be perpetual as long as the planets revolve in their orbits ; the winds will exist while the sun gives diversity of heat on different portions of the earth, the water power will diminish if the degradation of land goes on at its present rate, but in the language of the poet :

"The sun himself shall fade and ancient night
Again involve a desolate abyss."

These results, it may be said, are too remote to be within the pale of our sympathies, but this is not the case with regard to the power of coal. This is of definite extent on the surface of the globe, while the demand for it increases in a geometrical ratio with the time.

England, with sagacious forethought, has long been solicitous on this point and, by careful surveys is endeavoring to ascertain the limit of her national supremacy which essentially depends upon the power of combustion for its continuance.

We hear much in our day of the great principle of the conservation of force, but comparatively little of the dissipation of energy. We should recollect that the doctrine of conservation of force applies to the universe as a whole, and not to our solar system as a part. From the latter an immense amount of energy is every moment being dissipated in space to be utilized perhaps, in other systems but not in our own. The sun is every moment giving out an immense amount of power, an infinitely small portion of which is caught by the planets, which revolve around it as a center.

In regard to the power, though limited in quantity, it is used with reckless prodigality. Perhaps not more than three or four per cent. of that which is mined at any locality is applied with useful effect ; more than nine-tenths is wasted in the best form of our engines, and more than three-fourths is lost in the method of mining.

Surely this is a subject demanding the continued and scrutinizing attention of the engineer, since science holds out not the slightest prospect of the discovery of any other motive power comparable to this. I know the remark is frequently made that in view of the progress of the past, we cannot limit the discovery of the future. But, this is an argument that applies to all anticipations, however absurd, and, therefore, presents nothing on which we may rest with any degree of confidence. The only available power in the future not yet utilized, is that of the heat of the interior of the earth, but this will require very deep mining, and the power when reached, will not be immediately applicable to the use of locomotion.

The hopes which rest upon electricity as a motive power are entirely delusive. This is a power which specially tends to an equilibrium, and only exhibits energy when the equilibrium has been disturbed and is in process of restoration, and in the latter case, it only yields the equivalent of the power which was expended in the former. In the present condition, therefore, of our knowledge, further progress in the arts of civilization, depends essentially upon coal power, and after the supply of this begins to fail, material progress can no longer be expected.

What lessons are we to draw from these facts? Evidently, First. That of improving our system of mining coal, so as to utilize every portion of uncombined carbon imbedded in the earth in a given locality. Second. The improvement of our engines, which are at present exceedingly wasteful of power. For this purpose, the improvement of the air engine theoretically offers the greatest prospects for success.

Thirdly. In the more general application of wind, water, and tide power, the value of the latter, in several parts of the country, is beginning to be more highly prized, and special surveys have been instituted in some States, to ascertain actual amount of available power of this kind. Wind power, in many parts of the world, is much more generally applied than in this country, and tide power, which, in such positions as that of the Bay of Fundy, might be used with greater advantage, is scarcely recognized by the Engineer.

We might go on to speculate on the condition of humanity in the future, when our coal power shall have been exhausted, and the sun himself sends forth a diminished energy—but this would be a theme foreign to the considerations of the present. Craving your indulgence for occupying so much of your time, I beg to tender you my sincere regards and my best wishes for the continued success of your society.

THE GAS QUESTION.

WHEN, several months ago, the ENGINEERING AND MINING JOURNAL advised the Gas Companies that their own, as well as the public interests, would best be served by reducing the price of gas, and seeking, in a more economical manufacture, a compensation for the reduction in receipts, the advice was con-

sidered as at least unfriendly. Since then the storm of public indignation, that we saw coming up on the horizon, has burst upon the Gas Companies, and shows itself in urgent demands for a better article and lower prices, and in the wide substitution of kerosene for gas. The receipts of many companies, and, notably, those of Brooklyn, have fallen off to a large extent, and the value of stocks has declined in proportion.

TABLE OF BROOKLYN GAS STOCKS.

Company.	Capital Stock.	Par Value.	Rate Bid, for $100 of Stock. Nov. 13, 1875	Rate Bid, for $100 of Stock, Feb. 19, 1876	Total decline in market value of stock.
Brooklyn, Brooklyn	$2,000,000	25	250*	200	$1,000,000
Nassau, "	1,000,000	20	135	100	350,000
People's, "	1,000,000	10	101½	70	315,000
Metropolitan, "	1,000,000	10	110	70	400,000
W'msburgh, "	1 000,000	50	145	142½	25,000
Citizen's, "	1,200,000	20	153	104	588,000

* This was the asking price on this date.

Aggregate decline in market value of stock, for the three months, is equal to $2,678,000 or nearly 40 per cent. of the capital stock of the above companies.

This exhibit shows to what an alarming extent the public clamor and the defection of consumers have affected the value of these securities. It may be urged that this decline is due, principally, to the general "shrinkage of values," the hard times, etc.; and though, doubtless, this is one cause, the fact that the decline we note has occurred in the last three months, shows that it is due rather to the storm of public indignation than to the depression in general business. The figures are startling, and very suggestive.

The companies that haughtily ignored the claims of the public not many months ago, when a moderate reduction in price, and improvement in quality, would have satisfied consumers, have since reduced the price, but so slightly and tardily, that they have increased, rather than diminished, the storm. A reduction that would have been entirely satisfactory four months ago, will not now satisfy what have grown to be unreasonable demands. The Companies would have acted wisely, and have been in a better position to-day, had they listened to our friendly criticism, and made prompt and reasonable concessions to their patrons.

The Brooklyn Companies, besides greatly improving the quality of their gas, have reduced the price from $3 per thousand feet to $2.75, and as that was not sufficient to stop the stampede of "patrons," they are now said to propose reducing the price to $2.25.

The people are now becoming accustomed to kerosene, and even the city has called for tenders to light certain streets with the same material.

Though kerosene, at present prices, is a much cheaper illuminant than coal gas, yet its use is attended with so many inconveniences, and with so considerable a degree of danger, however carefully it may be handled, that its substitution for gas is, by no means, to be encouraged; nor is there any probability of its ever becoming general. While we deprecate its use in large cities, as a step backward, the present flurry will, probably, have a beneficial effect, in showing the Gas Companies that their control of their patrons is not so absolute as to enable them to ignore altogether their reasonable demands—and lessened profits will, lead to greater economy in production.

THE COAL COMBINATION'S PROGRAMME FOR 1876.

WE last week gave, in our market report, a very full abstract of this important document, and made some remarks on its most salient features. We now give it in full, adding also a comparison of the prices fixed upon for this year's trade with those of 1875 and 1874. From this it appears that "consumers," who contract before the 1st of April for their supply of coal, can purchase it at a reduction of from 25 to 45 cents per ton from contractor's prices last year, and a reduction of 40 to 95 cents per ton as compared with the prices of 1874.

The following is a comparison of the net prices of coal to consumers during the years 1874 and 1875 and those proposed for 1876. For 1875 we deduct an assumed commission of 15 cents per ton, the prices for 1874 having been net, as are also those for this year.

	Lump.			Steamer.			Broken.			Chestnut.		
	1876.	1875.	1874.	1876.	1875.	1874.	1876.	1875.	1874.	1876.	1875.	1874.
March	$4 20	$5 55	$4 55	$4 30	$5 65	$4 65	$4 40	$5 75	$4 75	$4 30	$5 35	$4 35
April	4 20	4 45	4 60	4 30	4 55	4 70	4 40	4 65	4 80	4 30	4 25	4 40
May	4 25	4 65	4 70	4 35	4 75	4 80	4 45	4 85	4 90	4 35	4 45	4 56
June	4 30	4 75	4 80	4 40	4 85	4 90	4 50	4 95	5 00	4 40	4 55	4 66
July	4 35	4 85	4 95	4 45	4 95	5 05	4 55	5 05	5 15	4 45	4 65	4 75
August	4 40	4 85	5 10	4 50	4 95	5 20	4 60	5 05	5 30	4 50	4 75	4 90
Sept.	4 45	4 90	5 25	4 55	5 00	5 35	4 65	5 10	5 45	4 55	4 80	5 05
Oct.	4 50	4 90	5 40	4 60	5 00	5 50	4 70	5 10	5 60	4 60	4 80	5 20
Nov.	4 55	4 90	5 55	4 65	5 00	5 65	4 75	5 10	5 75	4 65	4 80	5 35
Dec.	4 60	4 90	5 55	4 70	5 00	5 65	4 80	5 10	5 75	4 70	4 80	5 35

Though we welcome this concession to the urgent needs of our manufacturing industries, it is not so great as we had expected it to be, nor, as we believe, the condition of manufacturing and the best interests of the anthracite trade itself demanded. At the beginning of 1875, when the anthracite companies were seeking to reduce the wages paid for mining coal, one of the grounds on which this reduction was demanded was that the general settling down of values made it necessary the price of coal should be reduced. That it was not reduced to a greater extent, when the men, after six month's strike accepted a reduction in wages, was due, we were told, to the necessity for the companies regaining the losses caused by the strike.

The reduction in wages continues, there is no fear of a strike, and the price of coal has been reduced, but scarcely as far as is desirable.

The Pennsylvania Coal Co. has finally joined the Combination, and the Pennsylvania RR. Co., though not formally in it, has agreed to abide by its rules to such an extent, as not seriously to incommode their execution. These were made *sine qua non* conditions to the very existence of a Combination, and their absence was certainly a cause of ultimate dissolution that had become very apparent to every one familiar with the manner in which the coal business was conducted during the past two years. It would have been absolutely impossible to maina combination under a continuance of these disturbing causes.

The terms of the agreement between the companies are very stringent, but not more so than experience has shown to be necessary; it must be apparent to all concerned that if such a combination is to be maintained, the spirit as well as the letter of the agreement must be carried out in the utmost good faith, and even from the standpoint of self-interest, sufficient inducement seems to be offered to secure the loyal execution of the programme. So far, then, the Combination, whose very existence hung in the balance a few weeks ago, has apparently gained strength.

As to the effects likely to follow the execution of the programme, it is difficult to speak definitely, from the fact that there has already been some question among the members of the Combination as to the bearing of some of its provisions. Some claiming that retail dealers—as distinguished from middlemen—are entitled to be "contractors," while others claim that dealers come under the general class that must take coal at regular monthly circular rates. It is the generally recognized policy of some of the members of the Combination to dispense altogether with the services of the middlemen, and this programme offering coal to consumers at 20 cents a ton less than the middlemen or contractors can buy at—and 40 cents less than they can sell at—is almost the final act in this policy, for it takes the best part of the trade, and leaves only those whose purchases are too small to be worth contracting for, or those whose credit is so doubtful as to make them undesirable customers. The only good customers left to the middlemen are the dealers, but if these can buy as contractors, then indeed is the middleman's occupation gone.

Theoretically, no trade maxim can be more simple and satisfactory than that which would bring the producer and consumer together, and dispense altogether with the services of an intermediary. In practice, however, the satisfactory solution of the problem is by no means so simple. Consumers have to be educated up to an appreciation of what the producer has to sell, and it is rarely that a salaried agent of a company is as successful in this branch of education as the man whose income depends on his success. The financial responsibility of purchasers has to be examined into, and, here again, it is usual to find the man whose money is at stake more careful than he who is protecting a company. Many customers find it necessary to ask for extensions of credit, and this they can obtain more readily from an individual than from a corporation. For these, and many other reasons, the direct dealings of the producer with the consumer of coal have been found almost as difficult of satisfactory execution as those of the producers and consumers of dry goods or agricultural products.

The advantage the Combination has in its favor in endeavoring the solution of this old and oft tried problem, is that it controls practically, the whole production of anthracite, and, consequently, those who need that must accept its terms. The weak point in this argument is, evidently, that there are substitutes for anthracite, and if a large, active and very influential body of merchants, experienced in all the ins and outs of the trade, direct their energies, stimulated by self-interest, to securing the substitution of bituminous for anthracite coal, there can be little doubt of their making very material inroads upon the anthracite trade. This is not pure speculation, the past year has witnessed a considerable increase in the bituminous trade, and a diminution in the consumption of anthracite, brought about, largely, in this manner.

This substitution was greatly facilitated by a larger reduction in the price of bituminous coal, than in that of anthracite The present reduction in anthracite is, evidently, made with the object of stopping this defection; that it is large enough to do this, in the face of such counteracting influences as a still further reduction in the price of Cumberland coal—which seems probable—and the strenuous efforts of a considerable number of middle men thrown out of the anthracite trade by the present programme, is exceedingly doubtful.

Though, in some respects, less convenient than anthracite, there are yet few uses of anthracite in which it would be impossible, or even difficult, to employ bituminous coal, and, in some cases it is more economical at the same price per ton; the control which the anthracite mining companies hold of the market is, therefore, by no means, so absolute as to put them beyond the influence of rivalry. The following is the programme:

We, the undersigned committee, submit the following plan for the government of the anthracite coal trade to competitive points for the year 1876, viz.:

I. Competitive tonnage shall embrace all coal which, for final consumption or *in transitu*, reaches any point upon the Hudson River or the Bay of New York, or which passes out of the Capes of the Delaware, including all sizes except pea coal; provided that nothing shall be accounted as pea coal which will not pass through a screen-mesh of three-quarters of an inch square.

II. For the purpose of making a *pro rata* distribution, the competitive tonnage for the year 1876—*i. e.*, from January 1 to December 31—shall be assumed to be eight millions five hundred thousand tons, which amount shall be divided among the several parties hereto as follows:

	Per cent.	Tons.
Reading Railroad	25.57	2,173,450
Delaware and Hudson Canal	18.18	1,545,300
Central Railroad of New Jersey	15.98	1,358,300
Lehigh Valley Railroad	15.80	1,343 000
Delaware, Lackawanna and Western	13.65	1,160,250
Pennsylvania Coal Company	10.82	919,700
		8,500,000

III. That the aggregate tonnage awarded to each interest, as above, shall, prior to February 20, be divided by each into monthly shipments for the entire season, including in such division the actual shipments for the period of the year already elapsed, and when such division is made and approved by the Board of Control it shall represent the monthly quota of each interest for each month respectively. If during any month the aggregate shipments to competitive points exceed, or are less than, the aggregate of all the monthly quotas for such month, the excess or deficiency, as the case may be, shall be distributed to or be borne by the several interests in the proportion of their respective yearly quotas, the object being that any excess or diminution of tonnage over or under the assumed amount of eight million five hund ed thousand tons shall be divided according to the yearly quotas, and not according to the monthly quotas of the months in which such excess or diminution occurs, so that at the end of the year the entire competitive tonnage shall be divided amongst all the interests in the exact proportion of their respective yearly quotas.

IV. That on or before the tenth day of each month each interest shall make a return to the Secretary of the Board of Control of the entire coal production and shipments of its region or district, giving the origin of all coal tonnage, with such detail of the destination and distribution thereof into local and competitive, as may be required by the Secretary, in order to enable him to examine into and vouch the correctness of the several items; and in addition thereto, the shipping books and tonnage accounts of each company shall at all times be open to the inspection and examination of any member of the association or of his authorized agent.

V. That at the meeting of the Board of Control held next preceding the twentieth of each month the Secretary shall make return showing the actual shipments of each interest for the preceding month, together with the excess or deficiency of each, calculated as hereinabove provided; and thereupon each interest which is in excess of its proper shipment shall pay to the Secretary and Treasurer the sum of one dollar and fifty cents for each ton of such excess, for distribution by the said Secretary and Treasurer, at the rate of one dollar and fifty cents per ton, amongst those who have fallen short of the amount due to them in said month.

VI. That a committee of six, consisting of one representative from each interest, to be named by such interest, be appointed as a Board of Control for the year, who shall elect one of their members as President and another as Secretary and Treasurer, and who shall meet at least once a month, and as much oftener as they may determine to be necessary, and who shall have power—

(*a.*) To establish from time to time the monthly prices at which coal shall be so'd.

(*b.*) To provide for the increase or curtailment of the total quantity to be shipped to competitive points in any month, according to the requirements of the market.

(*c.*) To provide for the collection from time to time from all the members, in the proportion of their yearly quotas, any funds which may be necessary to pay the expenses incurred or authorized by the Board of Control.

(*d.*) To employ the services of an expert accountant, as an assistant to the secretary and treasury, to keep the tonnage accounts of the several companies, and to receive, examine and report upon the tonnage returns received from each interest.

VII. That in establishing prices for coals the white ash coal of the different regions shall be the basis, and for such coals the price free on board in New York shall be thirty-five cents per ton above the free on board price in Philadelphia for all sizes except chestnut coal, which, at the option of the Philadelphia and Reading Coal and Iron Company, may be seventy cents per ton less in Philadelphia than in New York; Provided, that any interest may adopt any higher prices for all or any of its coals than those established by the Board of Control; but Lehigh lump shall be fifty cents higher than other white ash lump coal.

VIII. That no commission shall be allowed on any sales of coal, and, in lieu thereof, there shall be a contractors' circular price established for each month, for all such yearly contractors as shall, prior to April 1, make application, which shall be accepted for a fixed amount of coal to be taken during the year in regular monthly instalments, which price shall be twenty cents per ton less than the general circular rate at which transient orders are taken. The form of such contracts to be approved by the Board of Control.

IX. That contractors' prices for the month of March be as follows, free on board in New York:

Lump	$4 40	Egg	$4 70
Steamer	4 50	Stove	5 30
Grate	4 60	Chestnut	4 50

X. That season contracts with consumers only be made for lump, steamer, broken and chestnut coals at the following rates, viz., free on board at New York:

	Lump.	Steamer.	Broken.	Chestnut.
March and April	$4 20	$4 30	$4 40	$4 30
May	4 25	4 35	4 45	4 35
June	4 30	4 40	4 50	4 40
July	4 35	4 45	4 55	4 45
August	4 40	4 50	4 60	4 50
September	4 45	4 55	4 65	4 55
October	4 50	4 60	4 70	4 60
November	4 55	4 65	4 75	4 65
December	4 60	4 70	4 80	4 70

and at thirty-five cents per ton less free on board in Philadelphia, except for chestnut coal, which may be seventy cents per ton less than the free on board price in New York. It being provided that all such contracts shall be made in writing prior to April 1, and that no commissions or allowances of any kind be made thereon, and that no such contracts be made with any other than a consumer of coal.

XI. That all sales to be made for cash, or with seven per cent. interest added in all cases for any deferred payment, the interest to commence from the date of the bill of lading, and all deliveries of coal be charged at the circular prices current in the month when the delivery is made, and under no circumstances shall any coal shipped in one month be charged at the circular prices of a preceding month, unless the purchaser had a vessel at the shipping point ready to receive the coal before the expiration of the previous month, and was actually entitled to receive the coal during such previous month.

XII. That no coal shall be sold by any party in any other manner than is above provided, or at any less prices, either directly or indirectly, than those above named, or which may from time to time be established as the monthly circular rates by the Board of Control.

XIII. That nothing but competitive tonnage shall be subject to the direction of the Board of Control, and that each interest shall have the absolute and exclusive control of its local trade.

XIV. That each transporting company shall be held responsible for the faithful adherence to these regulations on the part of all individual shippers using its lines to carry coal to competitive points.

Respectfully submitted.

THOMAS DICKSON,
FRANKLIN B. GOWEN,
Committee.

NEW YORK, February 18, 1876. PHILADELPHIA, February 16, 1876.

FRANKLIN B. GOWEN, ESQ.:

In response to your inquiry of this morning, whether, as we would not become a member of the Coal Association, our several coal companies would not agree that shipments of coal by them to competitive points eastward for 1876 should not exceed the shipments made from Philadelphia by the Capes of Delaware and from Amboy last year, and whether we would not at the same time agree to maintain rates as heretofore, I beg to state that our several coal companies will agree that their shipments to those points for 1876 shall not be increased over those of last year, and that they will maintain rates as heretofore, if your Coal Association should continue its organization and maintain its business arrangements as during the past year.

Trusting that this will be satisfactory to yourself and your association, I am, very truly yours,

THOMAS A. SCOTT,
President Coal Companies.

In our market reports will be found the circulars supplementary and explanitory of the programme.

THE INFLUENCE OF COAL-DUST ON THE EXPLOSIVENESS OF FIRE-DAMP.

THE actual conditions which may affect the explosiveness of fire-damp or any of the exceedingly variable hydro-carbon series, are but little understood. We know, by experiment, that the illuminating power of common coal gas is greatly increased by increasing the temperature under which the combustion takes place, and there is a probability that the very composition of the gas, in the act of combining with the oxygen of the air—in burning—may vary to an important degree, with different conditions of temperature, etc., under which the combustion takes place. An important series of experiments has recently been made by Mr. W. GALLOWAY, Assistant Inspector of Mines in South Wales.

He has found that a mixture of air and fire-damp, which could not be ignited by a naked lamp, becomes inflammable on introduction of coal-dust. If fine dry dust be mixed with air, a very small percentage of fire-damp is sufficient to render the mixture dangerous. It appears, therefore, that the clouds of coal-dust raised by a slight colliery explosion or by blasting in the coal, may be a source of great danger by conferring inflammability on air which is contaminated with fire-damp, but not otherwise inflammable.

This important observation may explain some of those mysterious explosions resulting from shot-firing, when the mine was supposed to be entirely free from gas. Its mere mention will be sufficient to put on their guard those in charge of collieries producing fire-damp, and the fact, if as stated, will be an additional reason for prohibiting shot-firing in such mines. The manner in which the coal-dust promotes the explosiveness of the gas is not explained.

Many of our readers will remember the report of a very peculiar explosion that occurred in a flour mill in England a few years ago. This explosion took place within the chamber containing the stones, and was so violent as greatly to injure the machinery and buildings; distinguished scientists who investigated the matter at the time, attributed the phenomena to the "explosion," in other words, to the rapid combustion of the flour-dust in the stones, which became ignited, by some accidental means. Thus it appears flour-dust may burn so rapidly as to be practically explosive, and in the combustion of pulverized fuel—the elaborate experiments on which have lately been discribed in the pages of this journal, by the talented gentleman who conducted them, Chief Engineer ISHERWOOD—the combustion of coal, and even of anthracite, reduced to the condition of impalpable powder, is so rapid as to be capable of developing in a confined space all the phenomena of explosion. We therefore see nothing either very new or at all improbable, in the suggestion that coal dust may be the cause of explosive phenomena under favorable conditions—and if the atmosphere in which its combustion takes place is already almost explosive, the conditions suitable to the more rapid combustion of the coal are favored—hence even without calling in the aid of any elaborate chemical theory, we may explain the phenomenon. Its practical bearing will be readily appreciated.

THE EDGAR THOMSON STEEL WORKS.

THE work done by the EDGAR THOMSON STEEL CO., Pittsburgh, during the week ending Feb. 19th, 1876, is probablythe largest week's work ever done with a pair of five-ton converters working single turn. The following is the detail:

Number of heats blown	119		Daily blows: Monday	20
Ingots produced	707	340-2240 tons.	" Tuesday	29
Ingots bloomed	709		" Wednesday	20
Rails rolled (60 lbs.)	560	138-2240 tons.	" Thursday	20
Vessel bottoms used	8		" Friday	22
Average heats per bot'm	14⅛		" Saturday	18
			Total	119

This work was done in 70 working hours, working single turn. It was done in regular work, as the number of blows made daily show, no special effort being made to produce a large output. Twenty-five rails were 60 feet in length, to be laid on the bridge of the P. Ft. W. C. Ry. across the Beaver River, near New Brighton.

SPONTANEOUS GENERATION AND "GERMS."—At a recent lecture at the Royal Institution, London, Professor TYNDALL gave some interesting results of his experiments. The basis of these is that, in the course of searching for means of obtaining air free from floating motes, he found that if air is allowed to remain in a closed air-tight vessel covered inside with glycerine, in the course of three or four days it deposits all its motes which adhere to the glycerine, and it thus becomes quite free from them. The test of its perfect freedom is to pass a powerful beam of light through the case, when, if any motes are still floating, they make known their presence by reflecting the light. With air thus purified, Professor TYNDALL had made a long series of experiments bearing on the question of spontaneous generation and on disease germs. From these experiments he argues that sewer gas of itself is harmless; it is the germs floating in the sewer gas that sow disease. If there are no disease germs present, the gas does no harm. Another set of experiments on the horizontal and vertical distribution of motes led to the conclusion that life germs float in little clouds, since an immense number of tubes exposed in different parts and at different heights in the laboratory showed that some were affected many days before others. Clouds of disease germs may explain a puzzle to surgeons—why a wound going on well for a while should suddenly, and without apparent reason, become putrid. It may be that it is being dressed just at a time when a "germ cloud" is passing. In his concluding remarks, Professor TYNDALL referred to the fact that it has remained for modern science to discover that, more than by battle, or accident, or famine, humanity suffers from disease germs conveyed in air and water.

OUR WESTERN MINES AND THEIR YIELD OF PRECIOUS METALS.

Special Correspondence of the Engineering and Mining Journal.

ACCORDING to the published statistics of Mr. JOHN J. VALENTINE, General Superintendent of WELLS, FARGO & COMPANY'S Express, the States and Territories of the United States, west of the Missouri River, produced during 1875, $76,703,413 in gold and silver bullion. If to this amount we add $4,185,624, as the product of Mexico and British Columbia, and estimate the yield of New Mexico along with small mining properties, the returns from which escaped the notice of express agents, at $750,000 more, the figures will prove nearly correct. It is true that a product of about a million dollars is claimed for Arizona, while $109,093 is all that appears in Mr. VALENTINE'S summary; but this discrepancy does not materially affect the gross annual returns, which may safely be given in round numbers at $81,500,000 in gold value, or over $91,500,000 in currency.

From an unfortunate cause, the product of the Nevada mines for 1875, great as that was, fell short of the sum to which it should otherwise have attained. In October, a hurricane of flame swept over Virginia City, and besides making ten thousand persons homeless, destroyed in an hour the costly hoisting works on the great bonanza mines. The yield of the Consolidated Virginia Mine during August, September, and the first 25 days of October, was $5,282,700, being at the rate of $61,426 in gold value per day, but from the date of the fire until November 30th, it amounted to only $513,200—from ore on hand—while during December the sum had risen to $1,000,000. In about thirty days after the loss of the hoisting-works, new and more perfect machinery than the old was ready to go into operation, both on the Consolidated Virginia and Ophir Mines. If the fact is kept in view that massive castings had to be procured from a distance; that solid foundations of anchor-bolted masonry had to be laid; that the fierce winds and premature snow-storms of an exposed mountain slope, 6,000 feet above the sea, had to be encountered; and that lumber, and every other building material, had to be ordered from the surrounding country, the feat of rebuilding, in a few days over a month, the largest and most effective mining machinery in the world, and in each case finishing an immense structure to inclose it, is deserving of high commendation. I find that between the fire and the close of the year the bullion product of the Consolidated Virginia Mine was by $3,500,000, than it would have been if no calamity had occurred, and the yield of the Ophir Mine was reduced by at least $500,000.

It is plain, then, that $4,000,000 would have been added to the precious metal harvest of 1875, if there had been no disastrous conflagration in Virginia City.

BULLION STATISTICS COMPARED.

Mr. VALENTINE'S bullion tables enabled me to make certain comparisons in regard to the production of gold and silver. The following results, obtained by dissecting his figures, indicate the amount of fine gold which has been added to the wealth of the world during 1875, by the Pacific Coast mines.

GOLD PRODUCT.

California, gold	$16,326,211	
" gold in silver bullion	557,314	
		$16,883,525
Nevada, gold	$ 216,543	
" gold in silver bullion	16,909,966	
		17,126,509
Montana, gold	$2,735,609	
Idaho, "	1,280,067	
Colorado, "	2,627,444	
		6,643,120
Other mining regions, gold		1,318,531
Mexico, "		68 117
British Columbia, "		1,776,953
Gold in other silver bullion		5,397,332
Total go'd		$49,214,087

If the silver contained in the native and retorted gold which appears in the above table were deducted, the fine gold would be considerably reduced, but in a general way the figures are sufficiently accurate for my purpose. In estimating the quantity of gold in union with silver I have been guided by assay certificates of Comstock bullion, and have assumed that 42 per cent. would be a fair average for the whole coast. This proportion is certainly no more above the truth than the gold bar and dust product, with its 12 to 15 per cent. of silver, is beyond the actual yield of fine gold. As the total exhibit of silver bullion for the year was $54,439,561, it follows that, as already shown, the gold it contained must have been about $22,864,612.

The following figures give an estimate of the quantity of pure silver which was added to the commerce of the world during 1875 by our mines.

SILVER PRODUCT.

Nevada—pure silver	$23,351,860
California " "	769,626
Utah " "	3,270,876
Colorado " "	2,129,978
Other mining districts, pure silver	2,052,610
Total silver	$31,574,950

Those persons who believe that the extraordinary production of silver by the Comstock lode will soon cause a heavy depreciation in the value of that metal, need not be anxious to magnify the threatened evil.

Though the increase is sure to be large in time to come, there will always be a corrective measure put in operation as the lowering of the price of silver brings a demand for it from other parts of the world. If speculators take advantage for a time of a local plethora their power to do injury will be of short duration. It will be noticed from the figures I have submitted that the aggregate gold product of the Pacific Coast is still much greater than that of its silver, being in fact 56 per cent. more.

The average yield of the Consolidated Virginia ore in 1875 was nearly $100 per ton, but of this let it be remembered 40 to 45 per cent. was gold, and that could have no effect in depreciating the lower metal. The Comstock lode ought to be quite as celebrated for its auriferous wealth as for its argentiferous treasures. Where in any zone of the earth save at the base of Mount Davidson, is there a gold quartz lode which has yielded in a single year 170,000 tons of ore worth $42 per ton in pure gold? The Consolidated Virginia Mine did that wonderful thing in 1875, and supplemented the product by $57 in silver per ton of ore worked. It will also be noticed that the Silver State produced during the past year more gold than the Golden State by $242,984, and mores than all the other Pacific States and Territories combined by $1,922,454. In its future yield of gold, as well as silver, Nevada will certainly remain unapproachable. Its yield now is at the rate of $1,000 per annum for every man, woman, and child within its limits, though the actual miners number only a few thousands.

INCREASED YIELD OF THE PRECIOUS METAL.

I have received from Mr. VALENTINE a statement of Pacific Coast bullion product for the years named underneath. It will be useful for future reference:

STATES AND TERRITORIES.	1871.	1872.	1873.	1874.	1875.
California	$19,523,000	$19,049,098	$18,025,722	$20,300,531	$17,753,151
Nevada	22,477,000	25,548,871	35,254,517	35,452,223	40,478,369
Oregon	1,500,000	1,905,034	1,376,389	609,070	1,165,046
Washington	284,000	226,051	209,395	155,535	81,932
Idaho	2,500,000	2,514,089	2,343,654	1,880,004	1,554,902
Montana	5,000,000	4,442,134	3,892,810	3,439,498	3,573,600
Utah	1,350,000	3,521,020	4,906,337	5,911,278	5,687,494
Arizona	150,000	143,777	47,778	26,066	109,093
Colorado	3,000,000	3,001,750	4,083,268	4,191,405	6,299,817
Mexico	1,000,000	535,071	868,798	798,878	2,408,671
British Columbia	1,500,000	1,350 064	1,250,025	1,636,557	1,776,953
Total	$56,284,000	$62,236,959	$72,258,693	$74,401,045	$80,889,037

The most noticeable thing in the foregoing table is the large and steady increase in the product of the Nevada mines. The yield of gold in California would be greatly increased if its quartz lodes were receiving the attention of capitalists, but so overs1adowing is the silver mining interest, that little attention is given to any other kind of mines.

The progress made by Colorado as a producer of the precious metals affords large promise for the future. The increase of 50 per cent. in 1875 over the yield of 1874 indicates that the keys capable of unlocking the mysterious vaults of that great treasure-house, have been found at last.

NEXT YEAR'S BULLION.

It has been estimated that the gold and silver mines of the State of Nevada will yield $50,000,000 in 1876. In all probability their product will exceed that amount by five or six million dollars, and it will be a very safe estimate to put it at $1,000,000 per week. There will thus be extracted in gold value $99.20 of precious metals during every minute of the year, and $1.65¾ for every second that throbs away its existence. This immense supply of bullion will weigh 930 tons of 2,000 pounds, and will require 93 railroad cars for its transportation to market. If cast into 50 pound bars 10 inches long and 4 inches wide, there would be obtained 37,200 "bricks," which, if laid end to end, would make a massive bright band five miles and seven-eighths in length. A wire made from this ductile material long enough to encircle the earth even, would not be found so fragile a thing as some persons might suppose.

PROFIT AND LOSS IN MINING.

On 177 incorporated mining claims in Nevada the assessments levied from the beginning, amounted, at the close of January, to $41,654,891, and as the dividends reached $67,241,199 the net profit was $25,586,308. These dividends, however, were all paid by 30 mines, on which there had been expended $21,303,170, thus leaving a net profit of $45,938,029.

On three Comstock mines the dividends amounted to $40,817,200, while the assessments which gave this grand result were only $1,854,970. The outlay on 147 incorporated mining claims was $20,351,721, but in their case not one dollar in dividends came back to the unfortunate shareholders. It is but fair to add in regard to these discouraging ventures, that much of the expenditure was made at a time when men were learning the business of silver mining.

It was a common thing, ten years ago, to purchase and explore lode locations, that now, owing to the possession by mining men of dearly bought experience, would not be thought deserving of a passing notice. The mining dividends paid in this city, during the last three years, stand as follows: in 1873, $13,366,000; in 1874, $11,805,000; and in 1875, $15,235,100. Of the latter sum $453,600 was paid by the Redington Quicksilver Mining Co.

It may also be of interest if I add, that the San Francisco Mint operations were $22,075,400 for 1873, $27,329,000 for 1874, and $32,008,000 for last year.

SAN FRANCISCO, February 7, 1876. J. D. EMERSLEY.

THE SPLINT AND CANNEL COAL MARKET.

TO THE EDITOR: SIR—In a recent number of your paper you quote:

American cannel coal per ton	$15 00
Kanawha splint coal, "	15 00
Cumberland coal, "	7 00

Will you be good enough to tell me what is the character of the Kanawha splint coal you quote, and to what extent sales could probably be made at $15? We understand here that two kinds of coal are brought from Kanawha, viz., the cannel coal and the splint coal, and as we buy the latter in Richmond at from $5 to $6 per ton, I did not suppose it could be sold in New York for more than $7.

Respectfully yours, E. DILLON.

INDIAN ROCK, Va., Feb. 19, 1876.

[The splint coal referred to as selling here at $15 per net ton, is that mined at Coalburg, and, we believe, at Cannelton, on the Kanawha. Many consumers prefer splint to American cannel, on account of the fact that much of the latter "pops" in the fire. At the exorbitant price ($15) asked, there cannot be any very large demand for either splint or cannel, but if they were offered at $8 or $9 per ton, there would, we doubt not, spring up a very important demand for them.—ED. E. & M. J.]

NITRO-GLYCERINE WORKS.—Prof. MOWBRAY will put up a two-story wooden building, 100x18 feet, on the site of his late nitro-glycerine works at North Adams, Mass. By a supply of warm and cold air and water, with leaden floor, the risks from spilling nitro-glycerine, and from thawing out when it has congealed, will be removed. As originally constructed, these works were not complete in this respect, and, although frequent reconstructions and additions had been made from time to time, still the unwillingness to tear down and use pick and crowbar over the site of the old buildings, prevented a thorough re-arrangement; this will now be done, and it is believed, hereafter an accident, so far as eight years' experience can suggest or provide, will be an impossibility. About two hours' work every day will be the limit of manufacturing, only fifteen minutes of this in handling the explosive; the remainder of the time will be spent in cleaning up and preparing for the next day's run.

MINES AND MINING IN THE PACIFIC STATES AND TERRITORIES DURING THE YEAR 1875.

Special Correspondence of the Engineering and Mining Journal.

NOT much has transpired in the gold and silver producing regions of the Far West during 1875, calculated to give to the year any special prominence in the annals of mining, the most noteworthy events thereof having been the further development of the bonanza, partially opened up the preceding year in the Consolidated Virginia and California mines on the Comstock Lode, and the devastating fire that occurred near the end of October, destroying the greater portion of Virginia City and the costly plant of several of the leading mines in the vicinity. This fire, besides laying waste so large a portion of the town, caused the Ophir, California and Consolidated Virginia Companies a loss—interrupted bullion production included—of something like five million dollars. Fortunately the mines themselves sustained no serious injury, and with such expedition were the mills and hoisting-works rebuilt, that the out-turn of bullion suffered only a temporary curtailment, ore-extraction and reduction having within two months from the time of the disaster been fully resumed. So large had been the reserve fund accumulated by the Consolidated Virginia Company, that it continued to disburse to the shareholders their usual monthly dividend of $1,080,000, notwithstanding their mill and hoisting-works, together with immense quantities of fuel, lumber and other supplies, had been swept away by the conflagration. In providing so liberally against contingencies calculated to abate or wholly interrupt production that company have evinced a foresight altogether commendable, while the dispatch wherewith both this and the other companies mentioned have replaced their ponderous machinery and rebuilt their entire works, speaks well for their recuperative resources, enterprise, and energy.

Mining operations throughout the extensive region under consideration, though not prospering so well in some localities and branches of the business as usual, have, on the whole, been attended with a full average share of success, the aggregate product of gold and silver in 1875 having been larger by five or six million dollars than that of any preceding year, the increased accruing net profits having been, no doubt, correspondingly large. Adopting, for the present, the figures reported by the General Superintendent of WELLS, FARGO & Co.'s Express, the value of the precious metals turned out last year by the several States and Territories west of the Missouri River was respectively as follows: California, $17,753,151; Nevada, $40,478,369; Oregon, $1,165,046; Washington, $81,932; Idaho, $1,554,902; Montana, $3,573,609; Utah, $5,687 494; Arizona, $109,093; Colorado, $6,299,817, making a total of $76,703,413. According to this statement California, as compared with 1874, shows a decreased production of a little more than two and a half million dollars. The yield of Utah and Idaho fell off slightly, and that of Washington Territory nearly fifty per cent., while Colorado made a very considerable, and Oregon, Montana, and Arizona, a small gain each.

As is their custom, the newspapers published in these States and Territories, backed by such other interests as are concerned to make a good exhibit of their mineral wealth, claim each for its particular section of country a much larger product of the precious metal than is here assigned it. According to this sort of authority Colorado turned out bullion last year to the value of $10,000,000 and Arizona to the value of $1,500,000; amounts so much greater than were accorded these countries by the express agent as to suggest the probability of both parties being somewhat in error. In the case of Colorado this discrepency may be partially accounted for, perhaps, by the fact that the local statisticians there are apt to include under the head of bullion the value of the lead, copper, and all other metals and minerals produced in the Territory; a practice not common elsewhere, and one that the express agent can hardly be supposed to have observed in making his annual bullion returns. In the case of Arizona the amount credited it by this agent is clearly too small. To suppose that a population of nine or ten thousand, more than a third of the number of adult men actually engaged in mining, should be able to produce an average of not more than $36 each in the course of a year, would be manifestly absurd. Arizona contains a considerable extent of placers, some of which are being actively worked; a large portion of the Territory abounds in gold and silver bearing lodes, several of which have been opened up and out-fitted with mills or smelting works that have been operated quite steadily throughout the year; some ores containing the precious metal have meantime been exported from the country and to fix its last annual bullion yield at half a million dollars would certainly not be too high. The decrease in California is accounted for by the fact that the water season there was unusually short and the weather during the earlier part of the year extremely cold, conditions that tended to seriously curtail the amount of gold dust that otherwise would have been extracted by hydraulic washing. The suspension of operations at the Union Mine, Cerro Gordo District, Inyo County, for the greater portion of the year, by reason of legal difficulties, diminished the annual yield of the State to the extent of nearly a million dollars. Lately work on this mine has been resumed, and it is not likely that it will suffer an early interruption. Vein mining, throughout California generally, proved fairly remunerative, showing gains on the product of former years.

More than any of its predecessors, the year 1875 has been one of preparation, and perhaps also, it should be added, of invention and discovery. Many extensive mining projects have been inaugurated: some costly improvements before set on foot have been advanced or perfected, much other preliminary labor having been done that can only yield fruits hereafter. A variety of mechanical inventions have been devised, and several metallurgical processes introduced, some of which promise to be of importance. The mining communities throughout our gold and silver producing regions are making good progress in the great industry that mainly occupies their attention. Each added year sees some hindrance removed or some formidable obstacle overcome. Gradually, but surely, everything connected with the complicated machinery of this business, is coming to its place and beginning to work smoothly.

What has tended more than anything else to promote steady improvement in this calling has been the growing disposition of the miners themselves to remain in one place, working for the liberal wages that they can almost always command, selling their claims when opportunity offers, or holding on to, and opening them up as fast as their means will admit. Having acquired interests in the district where his enterprise may have carried or accident cast him, the miner is, now, much less migratory in his habits than formerly. Those precipitate movements, once so common, whereby whole communities of miners, impelled by the rumor of rich mineral discoveries elsewhere, suddenly abandoned their place of sojourn and hurried away to localities generally far removed and difficult of access, and in which they met with only disappointment and loss, are now of rare occurrence. The old-fashioned *stampede* is, in fact, a thing that belongs to the past. The price of miners' wages has undergone no material change during the year, nor have any of those differences arisen that, a few years ago, caused so much trouble between employers and workmen.

Apart from the developments carried on in the Consolidated Virginia and California Mines, several important mineral discoveries were made the past year; the most noteworthy of these being, perhaps, the large bodies of good ore opened up in the Northern Belle Mine, Columbus District, the very considerable bonanza met with in the claim of the Eberhardt and Aurora Company, at White Pine, and the finding of the long-sought-for "Gunsight" Mine, which, it is claimed, has been identified with certain deposits of argentiferous ore found during the month of February in the Lee District, Inyo County, California.

The story of the original discovery of the Gunsight Mine by a survivor of a party of emigrants which perished in Death Valley, 26 years ago—how this man, a gunsmith, accidentally found the rich deposit, smelted out of a small piece of ore a button of silver and made a sight for his gun of it; how he communicated the information to others upon his arrival in California; how a wild excitement was raised, and untold numbers of prospectors went in search of the lost treasure every year, but never found it—all this is well known on the Pacific Coast.

In February of last year, a young man, by name of Lee, more fortunate than the rest, happened to find, on the westerly declivity of the Coro Mountains, eighteen miles north-east of Darwin, and sixteen miles east of Cerro Gordo, an extremely rich mineral deposit, which is firmly believed to be the original Gunsight Mine, as the locality agrees fully with the description given in the diary of the original emigrant discoverer, and the character of the ores is identical with specimens brought out by him to the settlements. A mining district has been formed, many locations have been made, a mill is already being erected, and the near future will tell, whether the very extravagant expectations now entertained by many of the mining community will be justified. S.

THE PRODUCTION OF THE SMELTING WORKS OF PRUSSIA IN 1874.

LIKE the iron mining industry, blast furnace operations in Prussia, in 1874, suffered severely from the effects of the general dullness of trade. In consequence of the reduction, and partly also the total cessation of operations, especially in furnaces producing crude iron, and the considerable decline in prices of all kinds of metals, the value of the produce of the iron and steel works in Prussia showed a total decrease of £6,358,046 against that of the previous year.

The total number of metallurgical works going in 1874 was 1,074; in 1873, on the contrary, 1,097. Of these 150 were iron blast furnaces (in 1873, 173); 843 (in 1873, 844) other iron and steel works.

The production of iron blast furnaces and other iron and steel works was in 1874 and 1873 in quantity and value as follows:

Description.	Quantities.		Value.	
	1874. cwt.	1873. cwt.	1874. £	1873. £
Pig iron	25,605,370	31,478,041	5,750,294	9,075,788
Iron castings, second melting	6,644,889	7,184,583	3,495,791	4,355,418
Iron products	21,840,485	19,511,724	10,185,512	12,610,215
Steel products (crude)	7,435.704	6,078,778	4,623,533	4,871,755
Total	61,526,448	64,253,126	24,055,130	30,913,176

The above values show what was the relative decrease in the price of iron and steel products in 1874 against the previous year. The average value per cwt. of crude iron was 4·49s. in 1874, against 5·76s. in 1873; iron castings, second smelting, 10·52s., against 12·22s. in 1873; iron products, 9·78s., against 12·9s. in 1873; crude steel products, 12·43s., against 15·02s. in 1873. The general depreciation in value is conspicuously shown by the fact that spiegeleisen, for instance, which in 1873 had experienced a fall from 132s. to 75s. per 1,000 customs pounds, found no buyers at the close of 1874 even at 51s.; and common pig iron was at the same time vainly offered at 39s. to 42s.

Of the 349 iron blast furnaces of Prussia, only 245, or 70·2 per cent., were at work in 1874, against 276 in 1873. The total working time during the former year was 2,114·3 months, or 662 months less than the previous year. Of the furnaces, 158 burnt coke, 15 charcoal, and 12 mixed material. The average production of each furnace was 104,512 cwt. in 1874, against 114,051 cwt. in 1873.

There were further at work in 1874:

948	cupola furnaces, against	921	in 1873.
97	reverberatory furnaces, against	103	
1,835	puddling " "	1,872	
102	fining forges " "	103	
56	Bessemer furnaces " "	36	
26	Martin " "	16	
85	crucible " "	106	
6	converting " "	14	

The average production per furnace was in 1874 and 1873 respectively:

Description of Furnace.	1874. cwt.	1873. cwt.	1874 more (+) or less (−) than 1873.
Cupola furnaces / Reverberatory furnaces	6,420	7,064	— 9·12 per cent.
Puddling furnaces	11,375	10,777	+ 5·55 "
Fining forges	6,211	2.742	+ 126·51 "
Bessemer process	71,673	70,270	+ 2·12 "
Martin furnaces	12,155	19,060	— 36·23 "
Crucible furnaces	1,091	947	+ 119·51 "
Converting furnaces	6,333	2,866	+ 120·97 "

The number of workmen employed in iron and steel furnaces was 110,986 in 1874, against 112,238 in 1873.—*Coal and Iron Trade Review.*

RICH GOLD DISCOVERIES.—A press dispatch from Colorado Springs, Col., Feb. 16, says: Very rich discoveries of telluride and free gold ores were made here to-day, within five miles of this place, assaying $273 gold and silver per ton. The veins are true fissures of great width.

LONDON EXHIBITION OF SCIENTIFIC INSTRUMENTS.—In compliance with the request of the German Committee for the exhibition of scientific instruments next April in London, Dr. FALK, Minister of Public Worship, has given permission to the academical institutions of Germany to send instruments to the exhibition.

RESPONSIBILITY FOR NEGOTIATING BONDS.—BARING BROTHERS, the eminent London bankers, for many years and until recently the bankers of the United States Government, not very long ago specially recommended as an investment the sterling bonds of the Eastern Railroad Company of Massachusetts, and sold £600,000 of them. Now, the company being unable to pay interest, the firm has issued a circular giving notice that it will pay full interest on the bonds issued through its house, said interest being due in March and September. We do not know that there has ever been a similar instance in the history of bond negotiations.—*Railroad Gazette.*

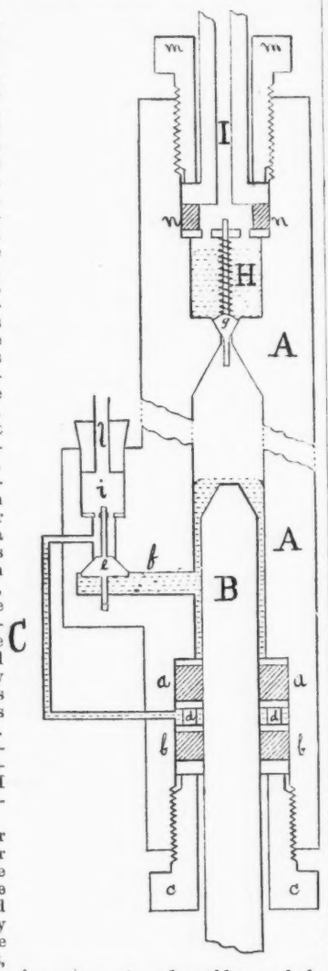
ON THE COMPRESSION OF GASES.*

By CHARLES F. BRUSH, M.E., of Cleveland, O.

THE compression of gases to a very high degree, for purposes of scientific research, has long presented serious difficulties to the physicist.

Great advances have been made of late years in the construction of ordinary air or exhaust pumps, while very little has been done towards the improvement of compression pumps. The principal difficulties encountered in the construction of such apparatus are the existence of the so-called "dead space" in the pump barrels, leakage of the piston packings under high pressure, and the trouble arising from the unequal expansion of parts caused by the development of the latent heat of the gas during compression. Of these obstacles to success, the "dead space" is far the most serious, as it fixes a limit to the performance of the pump beyond which it is impossible to carry the compression.

The writer having occasion, some time since, to make a series of investigations on gases very highly compressed, and finding no apparatus, or description of apparatus, adequate to produce the required pressure, devised the following, which appears to entirely eliminate all the difficulties above mentioned.



The accompanying diagram represents a longitudinal section of the pump through its axis. The barrel A, which may be made of any convenient length, is of cast iron, and is made rather heavy, both for the purpose of resisting great pressure, and to absorb and dissipate, to some extent, the heat evolved during action. B is a steel plunger of less diameter than the interior of the pump, so teat an annular space is formed between A and B. The plunger passes through two stuffing boxes, *a* and *b*, whose packings are supported by movable iron rings; thus both are compressed to the requisite degree by means of the screw *c*.

The stuffing-boxes are separated by a ring *d*, thus leaving a small space between them as shown. This space is connected by a small tube C, with the chamber *i*, which latter communicates with the reservoir of gas to be compressed, by means of the cork and tube *l*. The inlet valve *e* is of steel, conical in form, and carefully ground to its seat. It opens into the passage *f*, thus communicating with the interior of the pump. The exit valve *g* is also of steel, but smaller than *e*, and is ground to its seat with much care. It opens into the chamber H, and is held firmly in position by a spiral spring of steel. This valve is prolonged at its lower extremity to such an extent that it comes in contact with, and is raised a short distance by the plunger B, at the completion of its upward stroke. I is a strong tube for the conveyance or storage of the compressed gas. It is firmly secured to the body of the pump by means of a flange on its lower end, and the screw *m*, which forces the flange against the rubber washer *n*. Such a washer will make a tight and permanent joint under any degree of pressure, provided the flange of the tube I fits the bore of the chamber with tolerable accuracy.

The plunger B may be actuated either by a crank and fly-wheel, or by a lever so arranged that its short arm shall lie in a straight line with the axis of the plunger at the completion of its upward stroke. This arrangement is absolutely necessary when very high pressures are to be produced, as the resistance at, and near the completion of the stroke, is very great, and could scarcely be overcome without thus taking advantage of the "knee-lever" principle.

The body of the pump is finally partially filled with mercury, as shown by the dotted spaces, to such an extent that at the completion of the upward stroke of the plunger, the annular space around it, together with the passage *f*, are entirely filled, and the chamber H nearly so.

The operation of the apparatus is then as follows: At the downward stroke of the plunger, the valve E is opened, both by its own weight (the mercury having receded from under it at the completion of the stroke) and by the pressure of gas above it. Gas, from the chamber *i*, then rushes through the valve and fills the vacuum above the plunger. At the beginning of the upward stroke, mercury flows into the passage *f*, and closes the valve *e*, by *floating* it into position. As the plunger proceeds upward, the compressed gas may force open the valve *g*, and escape into the chamber H, rising through the mercury there contained; or, if the compression has already advanced to a considerable extent in the chamber, the valve may not open until raised by the end of the plunger; but, at the end of the stroke, the space above the plunger will be entirely filled with mercury, leaving no dead space whatever, and *all* of the barrel-full of gas will have passed up into the chamber. The valve *g*, being still held open by the plunger, will allow a small quantity of mercury to pass from the chamber back into the pump when the plunger recedes; thus insuring sufficient mercury in the barrel to completely fill it at the end of the next stroke, after allowing for leakage through the stuffing box *a*. The object of *two* stuffing boxes *a* and *b*, will now be apparent; the small quantity of mercury which must certainly be forced through the box *a* at each stroke, by the great pressure in the pump, and which, if allowed to escape, would very soon exhaust the supply inside, is conveyed by the tube C to the chamber *i*, and is drawn into the pump again at the next stroke.

No leakage occurs through the box *b*, as the pressure sustained by it is only that due to the height of the short column of mercury in the vertical part of the tube C.

It will be noticed that the upper portion of the interior of the pump barrel contracts gradually, toward the valve passage; this is to prevent small bubbles of compressed gas sticking to the walls, and allowing the advancing mercury to flow past them, as might happen if the contraction was abrupt.

A small pump of this kind, in the writer's possession, readily compresses air into the thousandth part of its normal volume; and there appears to be no reason why the operation might not be carried much further by the application of sufficient mechanical force. The limit to the action of this apparatus appears to be only a question of the strength of the receiving vessel and of the pump itself.

* A Paper read before the American Institute of Mining Engineers, at the Cleveland Meeting, October, 1875.

WORKING QUICKSILVER ORES.

WE give herewith an article from the *Berg und Hüttenwesenmännischen Zeitung*, the translation of which has been kindly furnished us by Mr. J. B. RANDOL, manager of the New Almaden Mine. It describes a new process of working quicksilver ores, proposed by EMIL PELLET.

In the *Revista Minera*, Vol. XXII., as also in this journal, Vol. XXXI., 1872, on the 410th and following pages is mentioned a new process for the reduction of cinnabar ores, by EMIL PELLET, and on the 309th and following pages of the first mentioned publication, is a review by YGNACIO GOMEZ SALAZAR, of the results of the trials of said process, made in the year 1869, at the works of Almaden, in Spain, under the direction of the mining inspector, DON JOSE MONASTERIO Y CORREA, and which appears in his official report, the statements of which may prove of interest, as no further details about this process have been published since. In Vol. XXIX., 1871, of the *Revue Universille des Mines, etc.*, by DE CUYPER, is on the first and following pages a communication about the quicksilver mines of Almaden, by JOSE MONASTERIO Y CORREA, and at the end of it is promised, also, a description of the process employed in Almaden for the reduction of ores, but as this has not appeared as yet, the following remarks of SALAZAR on the results which were produced by the experimental tests of PELLET's process may find a place here.

According to the statements of SALAZAR, PELLET asserted that he had discovered a process for which he claimed the following advantages:

1. No loss of quicksilver contained in the ore.
2. Curtailing of the expenses of working the ore and of fuel.
3. No losses of quicksilver by vaporization, explosion, or imperfection of apparatus.
4. Reduction of the ore in the state in which it is mined, wet or dry, in large or small pieces.
5. Uninterrupted working throughout the year, regardless of the state of the atmosphere.
6. Low cost of the apparatus and inconsiderable repairs.
7. Safety of the health of workmen.

These great advantages of the new process were considered for the works of Almaden of the greatest importance, and each one of the advantages claimed was regarded as meriting a reward; hence, the government of Spain willingly offered opportunities and means to test the new process at the reduction works of Almaden, under the management of MONASTERIO and ARCIAGA, who were directed to report upon the results in detail. MONASTERIO asserts in his report that all conjectures of the inventor of the tested process had proved themselves to be incorrect. The loss of quicksilver, which PELLET had promised to avoid entirely, had been found to be doubled. The cost of reduction had been four-and-a-half times greater than the expenses of the old process, which had been used in Almaden over seventy years, and the escape of quicksilver (volatilization), through cracks, and in every conceivable manner, had caused great losses. Neither in the dry nor in the wet state, neither in small nor in large pieces had they been able to reduce the ore as it had been mined; and after breaking with the hammer, the ore had suffered losses in every state of the atmosphere in summer and winter; and also the health of the workmen who were employed for the PELLET process had suffered considerable injury.

According to the process, by PELLET, the distillation of the volatile parts of the ore is effected by means of a continuons roasting in place of the intermitting roasting, and the condensation in the atmosphere is replaced by a condensation under water. SALAZAR further asserts that the process of PELLET, respecting the two above-mentioned deviations from the usual process of Almaden had been previously tried in Spain and other countries with unfavorable results. The use of water for the condensation of mercurial vapors could not properly be regarded as the invention of PELLET, for the use of rain had been proposed, but rejected, for the attainment of the same object; and the proposed conduction of these vapors through a mass of water of five millimeters did not promise favorable results. The application of a current of air, created by a ventilator placed at the base of the furnace, was neither new nor proper, and, in the case under consideration, did not serve its purpose, and the arrangement of the contrivance was like many others, whose main part consisted in a system of chambers. Based upon these facts, SALAZAR believes himself to be justified in regarding the process of PELLET as one which, although based upon good principles, through their misapplication formed an aggregation totally unfit for the accomplishment of the desired object.

In accordance with SALAZAR's assertion, the unfavorable result obtained of the competitive trial at Almaden cannot be ascribed to the retention of means and resources, as an unlimited supply of them with most favorable opportunities for their application had been accorded PELLET. He was permitted to make a preliminary trial, and to introduce for the decisive trial several important modifications, suggested by the results of the prior trial. PELLET's process of reduction was placed in comparison with the results of a furnace in Idria, which produced less than the older furnace of BUSTAMANTE, and the competitive trial took place in the hot season, which is the most unfavorable season of the year for the Idria furnace. Balls of coal dust, which are always used in charging the Idria furnace, were omitted in the trial charge, for PELLET did not use them. This was a disadvantage for the Idria furnace.

Notwithstanding the equality of the charges placed in both furnaces, PELLET protested against the coat of cement with which the interior of the Idria furnace was lined. But to bring about in this instance also an equality, PELLET's furnace was also lined with a coat of cement. PELLET asserted that the above mentioned coat of cement belonged to his invention, and drew from this the inference that the unfavorable difference of the obtained results at the trial was owing to this trifle.

SALAZAR says he would not have mentioned this assertion of PELLET's if MONASTERIO in his report had not spoken in favor of it. But he would remark to both, that neither the cement nor its application belonged to the invention of M. PELLET, and that the cement coating of the furnaces of Almaden had been proposed many years previously by a mining engineer of Spain.

Omitting the other critical comments of the report of MONASTERIO, we shall make the following extracts from the communication of SALAZAR, page 392, etc., and 494 of the *Revista Minera*. The mind of PELLET was not set at rest by the failure of the trial of his process at Almaden, but he gave it another test at Albunol, to which SALAZAR had been previously invited, but the invitation was declined for the following reasons: PELLET had offered his process to the Spanish government in 1867, claiming for it the above mentioned advantages; he had requested the government to compare the results obtained by his process with the process then in use at Almaden; he had further requested the appointment of a committee of experts, and in case the committee should report in favor of his process to grant him a reward, which, according to the estimation of PELLET, would have amounted to 15,000,000 reales.

Regarding the improvements in the process of reduction and the preservation of the health of the workmen, the government had referred the petition to the highest mining authority, which had agreed with PELLET to test his process under the following conditions: The reduction of the quicksilver ore, taken from the same pile, should take place simultaneously in two furnaces, one to be constructed according to the direction of PELLET, and the other to be modeled after the furnaces then used in Almaden, and the obtained results to be placed side by side for comparison. PELLET had received, with the greatest readiness, during his presence of two years at Almaden, and even before the beginning of his principal trial, all the required means and assistance, and, furthermore, in a preliminary trial for the discovery of some possible defects, he had been materially aided. Workmen for the training in the work of the new process had been placed under his charge, and in every respect the greatest possible latitude in his actions had been granted to him. But, notwithstanding these opportunities favorable to success, a large number of laborers had got sick, and a smaller yield of quicksilver had been obtained, and without counting the costs of erection, the expenses had been greater than usual at the works of Almaden. PELLET had acknowledged the trial and the obtained results, but after an expiration of two years he had rejected the trial, and had insinuated that MONASTERIO was responsible for the failure, and, therefore, he, SALAZAR, could not accept the invitation to Albunol. SALAZAR asserts, further, that the failures of both trials in Almaden and Albunol had not been sufficient to restrain PELLET from making a third trial. PELLET had transferred his invention to a company, to which the Spanish government had granted a repetition of another trial. SALAZAR does not doubt that this would be another competitive trial, that one furnace would be constructed according to PELLTT's direction, and the other after the Almaden old style, that in both the same quality of ore would be used, and that all necessary caution would be taken at the trial. He also thinks it indispensable not to lose sight of the experience already gained at the former trials, and to guard against any error which might give a right to the inventor to claim the premium of 15,000,000 reales. He (SALAZAR) thinks the decision of the new trials of PELLET's process, under all circumstances, as determined, for the following reasons:

1. The appointed commissioners possess the most extensive knowledge of mining and reducing quicksilver ore.

2. In case this trial should result in favor of PELLET's process, it would be imperative that another trial should be ordered, to decide the contradictory results of the trials so far made.

In the following Vol. XXIII. of the *Revista Minera*, no mention is made of PELLET's process, with the exception of a single allusion to the first unsuccessful trial, and as SALAZAR (page 389, etc., of this vol.), when speaking of some objections which had been made against the furnace of BUSTAMANTE, commends the said furnace, it would appear that the trial had not then taken place. SALAZAR will, doubtless, publish in the *Revista Minera* the results of the new trial as soon as it shall have ended, and will, at the same time, make publicly known the peculiarities of PELLET's process and the application of the contrivance employed.—*Scientific Press.*

SALT AND BROMIN MANUFACTURE.

THE manufacture of salt and bromin is carried on very extensively in the Ohio Valley. The salt is shown by chemical analysis to be the purest in America, and its perfect freedom from lime renders it very desirable for dairy use. The salt water is obtained by boring wells from 800 to 1,000 feet through a variety of soil, solid rock, and usually two stratas of coal. It is first pumped into a wooden cistern to settle, then run into iron pans, and boiled until ready for crystalizing, then drawn off into wooden grainers, through which copper pipes of 3 or 4 inches in diameter, filled with steam, pass the entire length of the grainer, heating the brine to an equal temperature. The salt crystals form on the surface, and are prevented from adhering firmly by mixing a small quantity of butter or tallow, which separates them, and they gradually fall to the bottom of the grainer and become salt proper. It is then lifted on platforms by workmen, and left to dry for 12 hours, after which it is packed into barrels, weighed, and ready for market. The salt analyzed shows: Sodium chloride, 97.5; Moisture, 2.0; Foreign matter, .5.

Coal is found in the immediate vicinity of the salt veins, and some natural gas. On the Kanawha River, where salt is also manufactured, gas flows in sufficient quantities for boiling the salt water.

From the waste, or mother-water, of the salt works, bromin is extracted, and forms an extensive article in trade, selling at one time for $9 per pound, the specific gravity being about three times that of water. There are six bromin factories in this locality, and when all are in operation they control the price of the foreign market. However, bromin, like all other merchandise, has shared in the decline, and is now sold for 34 cents per pound. The increasing demand for the article for medicinal purposes, and by chemists, dyers, and photographers, has made it a source of immense profit. Large quantities are annually exported. They also propose making soda, and are now erecting a factory.—*Manufacturer and Builder.*

STEEL BRUSHES FOR IRON FOUNDRIES.—Iron castings, on being released from the mold, are often found incrusted with a slag formed from the molding sand run down with iron oxide. The removal of this is effected in the ordinary way by filing, but BERTHOLD, of Dresden, manufactures brushes of crinoline steel, which are found to preserve their sharpness longer than a file, and to be more handy in use.

GLASS BEARINGS.—Messrs. CAMPBELL, JONES & Co., of Pittsburgh, are manufacturing glass bearings for journals. The advantages claimed are cheapness and less liability to heat. They are said to run very well without lubrication, but that it is better to use a very little oil. One of these bearings, made of ordinary glass, sustains a pressure of 10,000 pounds to the square inch before cracking; another, made of a special "mix," requires a pressure of 27,300 pounds before breaking. Some of these bearings have been placed upon railway car journals, and upon a saw shaft journal in a planing mill, with very satisfactory results so far.

THE CLAUSTHAL WORKS.

(From Engineering.)

THE NEW DRESSING WORKS AT CLAUSTHAL, THE HARTZ, NORTH GERMANY.*

THE dressing of the ores obtained from the mines in the Clausthal district ("Berginspection, Clausthal") formerly took place at the thirteen dressing works situated in the Stamp Valley to the west of Clausthal. For these works (which lay successively below each other) the existing fall of water of 160 feet was so utilized that the waste water and "Lauterwasser" (*i. e.*, water used in the dressing operations) from the one building was led to the next immediately below.

It was evident that such an application of the existing waterfall, especially with water-wheels of the old design and construction, could not but be advantageous; but the real efficiency of these motors was so low, and the method of using them so faulty, that the majority of these relatively small works were not merely supplied with one water-wheel (as would have been theoretically more correct, and from which, by appropriate means, the power should have been transmitted to the different machines), but often in the one and the same building there were separate water-wheels for different machines, and these were most defectively arranged and constructed for the utilization of the existing fall.

Besides this the works were mostly fitted up with old dressing machinery which did not allow of being altered to correspond with modern improvements, or if so only at a relatively too great cost. The consequence was, that when fifteen years ago the question arose, and was discussed, whether, on account of the considerable increase in the works opened out in the Clausthal district, and the consequent necessary increase in the power and capabilities of the dressing works, it would be more advantageous to alter and extend the existing works, or to build a new one more suitably laid out with respect to the existing waterfall, the decision was in favor of the latter alternative. In the year 1862 a design for the new works was already prepared. Its object was the dressing of 50,000 tons of ore yearly, half smalls, ("Grubenklein,") half knockings ("Wande"), exclusively by the use of the existing incline (1 in 10) giving a total fall of water level of 114 feet.

In conformance with the requirements of the design, in which the laying out of the present stone-crushing and sorting buildings, above the tip room, was not included, it was intended that one part of the work, namely the dressing of the finer ores ("Grubenklein"), in what is now the coarse separation department, as well as the crushing by the rolls and the jigging, should only be performed during the day-time. The stamping, on the contrary, being performed during the night. The different buildings were designed sufficiently large to hold machines capable of dressing half as much ore again, *i. e.* 75,000 tons in a year, this being done partly that it might be possible in rainy weather to make up for any scarcity of water which might at other times occur, and partly to enable the production to be increased later on if desired.

The construction of the works according to the above design was already considerably advanced, when in 1867 the greatly increased productiveness of the mines during the previous year, and the evident still further increase, caused it to appear necessary to augment, if possible, the capacity of the works threefold, thus rendering them capable of dressing 150,000 tons of ore yearly. In fact it appeared possible to carry out this programme by introducing day and night work in each and all of the buildings, and assisting the existing water power by steam.

Accordinly for the stamps, which were originally only intended to be driven during the night with a rotary water engine with 96 feet fall of water, the laying down of a steam engine was found necessary, and further in the building of an additional pair of coarse rolls (of which in the original project only two were contemplated), it was arranged to drive them by a steam engine, and it was considered desirable to have the latter of sufficient power to be able to drive also the middle and fine rolls, and during the repairs, or cessation owing to scarcity of water, the respectively upper and lower lying coarse and fine jigging houses, which are otherwise driven by turbines.

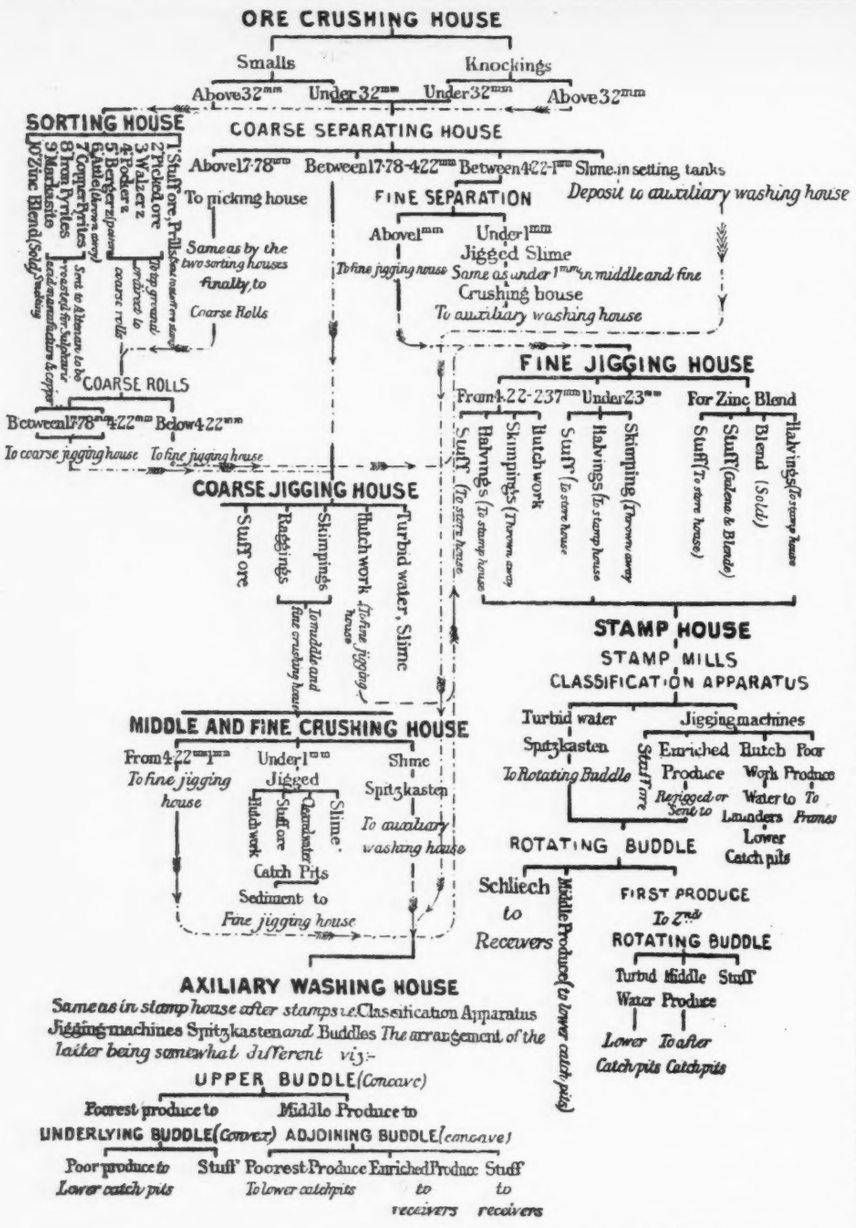
It may be here remarked that according to the original plan the coarse grinding mill, between the coarse separation department and the coarse jigging house, was to be fitted up with two sets of rolls, each driven by a separate turbine, but, when the works were extended, it appeared judicious as a precaution against scarcity of water, to lay down only one set of rolls in this building, and in a second building, for which there was room behind the coarse jigging house to place two sets of rolls driven by steam power.

Besides the already indicated extensions and alterations of the original plan, it was necessary to take into consideration the simplest and cheapest means of conveying the large quantities of ore, and the saving of labor during the operations preceding those of the real dressing; these matters led to the laying down of a shaft for the transport of the ores and of the ore crushing and sorting buildings, which will claim our first attention.

The greater part of the works were constructed and brought into successful operation by Herr W. RIEHN, formerly engineer of the Königlichen Maschinen Verwaltung, Clausthal, now head of the firm RIEHN, MEINICKE, & WOLF, civil engineers, Görlitz, Prussia. In designing the works Herr RIEHN assumed that the different machines should be capable of dealing with the following quantities of materials, and for the time that the machines have been in operation these assumptions have been satisfactorily fulfilled.

	Hundred-weights per hour.
1. One stone crusher (BLAKE's). Of these there are six.	110 to 150
2. One pair of coarse rolls. Of these there are three.	110 to 140
3. One coarse jigging machine. Of these there are thirteen.	44 to 50
4. One set of two pairs of fine crushing rolls, which deliver ore from the first pair to the second, together. Of these there are six sets.	50 to 60
5. One fine jigging machine. Of these there are twenty-four.	27 to 35
	Hundred-weights in 20 hours.
6. One stamp mill consisting of ten wooden stamps with iron heads. These, of which there were eight, are now replaced by mills consisting of twenty-two (throughout iron) stamps, each mill dealing with. The buddles, spitzkästen, frames, &c., in the stamp house are designed to correspond.	300 / 500

* Partly translated by J. CLARK JEFFERSON from "Die neue Aufbereitungs-Anstalt bei Clausthal," von Herrn KUTSCHER, Königl Bau, und Maschinen Inspector, in the "Zeitschrift für das Berg Hütten und Salinen Wesen in dem Preussischen Staate," XXI. Band. For much information and drawings not contained in the original descript on we are indebted to Herr W. RIEHN, civil engineer, Görlitz, Prussia, by whom chiefly the works were designed and constructed.



Hundred-weights per hour.

7. One coarse separating apparatus, *i. e.*, riddles..... 70 to 110
   Of these there are four.
8. One fine separating apparatus..... 46 to 60
   Of these there are two.

The number of fine rolls is possibly somewhat too small for the maximum capability of the dressing works, but as there is at present a deficiency of winding power, and until the "Königin Marien" shaft is finished they more than suffice for all the ore which can be at present raised. With respect to the stamps, of which as yet only about two-thirds of the number are built, we may mention that rather more has been required of them than was anticipated, in consequence of less ore being passed on to the fine jigging machines than was originally intended, owing to the greater richness of the galena.

In order to assist our readers more readily to follow the series of operations we are about to describe, we have drawn up the subjoined diagram, which shows the relation of the succession of operations to one another, though it must be clearly understood that these will always vary with the varying conditions of the ore and requirements of the works.

CONVEYANCE OF THE ORES.

After the above preliminary remarks we may, before commencing the description of the dressing works proper, say a few words concerning the conveyance of the ores.

The conveyance of the ores from the mines lying to the east of the works will take place chiefly in the winding shaft which is still in course of sinking. This shaft, which lies with its hang bank above the highest point of the dressing works, will, at its deepest point, be brought into communication with the mines in the Clausthal district, by means of the ERNEST AUGUST adit level, which was completed in 1864. The ores are transported along the adit to the bottom of the shaft in boats. These boats have the shape in plan of a long rectangle, 26 ft. 6 in. by 4 ft. 9 in., with a triangle at each end, giving a total length of 34 ft., they are 2 ft. 10 in. deep, and carry from 5 to 8 tons. A wire rope is stretched along the roof of the adit, by means of which the men pull the boats along. The question of the best mechanical means for moving the boats is still under consideration. The winding of the minerals in the shaft from a dept of 180 lachters (about 1100 ft.) will be effected by a winding engine.

Smaller quantities of ore obtained from the mine Alter Segen, which lies to the east of the works, are conveyed by means of a tramway. The ores from the mine Silber Segen, which lies to the south are raised from a depth of 120 ft. by means of a smaller winding engine in the same building, out of the small side shaft, which communicates with the mine by means of a level.

The supplying of the works by winding in the chief shaft will be possible during the current year, when at its deepest point the shaft will be in communication with the mine Alter Segen. As yet transport takes place from the two mines Alter Segen and Silber Segen in the manner above indicated. In our next article we shall commence our description of the ore-dressing machinery.

THE FRENCH COLLIERS.

SOME interesting particulars relating to coal mining in France are contained in a paper read by M. LEVASSEUR before the last meeting of the Academy of Moral and Political Sciences. At the beginning of the present century the annual output of coal in France was estimated at 850,000 tons, against 10,000,000 tons in Great Britain. In 1825 the French output was 1,500,000 tons, against 15,000,000 tons in Great Britain; in 1850, 4,500,000 tons, against 60,000,000 tons; and in 1875, 17,000,000 tons, against 130,000,000 tons in this country. The French miner produces only about 169 tons per annum, against about 313 tons got by the English miner. The difference is not due to the inferiority of the former as a worker, but is attributed to the depth at which the coal is found, this being considerably greater in France than in England, and to the less solid and more aqueous character of the adjacent earths. These circumstances considerably enhance the incidental expenses of working, which are estimated at from 75c. to 1fr. 50c. per ton in France against 20c. per ton in England. The earnings of the French pitman are, for the same reason, much lower than those of his English compeer. In 1865, it was calculated that the latter cou d earn 5fr. 90c. per day, against 2fr. 87c. realized by the former. Colliers' wages, however, vary much in France at present in different districts. In the large pits they range from 2 fr. 90c. per day, to 4fr. 55c.; while in the small and isolated works the average is not lower than 4fr. 81c. The wages depend rather upon the quantity obtained than upon the effort made by the pitman, whose earnings are, therefore, lowest when the conditions are most adverse. They depend also upon the market value of the article. Taking an average for a number of years, the normal earnings of a collier in the Department of the Nord would be 764fr. per year; during the period of high prices, 1871-3, his wages were as high as 1,059fr. per annum. There has been a considerable reduction since, though wages have not yet sunk to their former level. One of the most interesting statements in the paper is to the effect that while the advantages of the English miner do not encourage him to work, but rather the reverse, the efficiency and industry of the French colliers are increasing. In France during the period 1868-72 the miner worked on an average 281 days per annum, while in England the average was 260 days. In both countries the aggregate output increased annually during this period at the rate of about 18 per cent.; but while in France the number of miners increased only 1 per cent., in England the increase was 20 per cent. According to these figures the output of the French miner increased about 17 per cent., while that of the English pitman decreased 2 per cent.—*Coal and Iron Trades Review.*

THE IRONWORKS OF THE UNITED STATES.

THE Centennial edition of a work under this title, prepared and published by the American Iron and Steel Association, will be received from the printer in a few days and sent to those who are entitled to receive it. It is a book of about 140 closely-printed pages, and contains fully one-third more information than the first edition which appeared in 1874. A summary of the prominent facts established by the book is given below:—

Whole number of completed Blast Furnaces, Jan. 1, 1876	713
Annual capacity of all the Furnaces, in net tons	5,439,230
Whole number of Rolling Mills, Jan. 1, 1876	332
Whole number of Single Puddling Furnaces (each double furnace counting as two single ones)	4,475
Total annual capacity of all Rolling Mills in finished iron, net tons	4,189,760
Annual capacity of all the Rail Mills in heavy rails, net tons	1,940,300
Number of Bessemer Steel Works, Jan. 1, 1876	11
Annual capacity in ingots, net tons	500,000
Number of Bessemer Converters	24
Number of Open-Hearth Steel Works, Jan. 1, 1876	10
Number of Open-Hearth Furnaces	22
Annual capacity in ingots, net tons	45,000
Number of Crucible and other Steel Works, Jan. 1, 1876	39
Annual capacity of Merchantable Steel, net tons	108,250
Of which there are of Crucible Steel, in net tons	45,000
Number of Catalan Forges, making blooms direct from the ore, Jan. 1, 1876	33
Annual capacity in blooms and billets, net tons	59,450
Number of Bloomaries, Jan. 1, 1876, making blooms from pig iron	59
Annual capactiy in blooms, net tons	60,200

—*Bulletin.*

M'ANDREW IN POLITICS.

A CORRESPONDENT favors us with the following letter, addressed to the Editor of the Ashland *Advertiser*, ten years ago, by the present Clerk of the Schuylkill Mining District. We are compelled to confess, on perusing it, that M'ANDREW has not improved, but rather degenerated, since that time. Nothing that he has done of late years is equal to "*crubiscent.*" And nothing that we can say will add to the public appreciation of the literary beauties which we here reproduce. It would be interesting to know if it was this effort that caused the great State of Pennsylvania to appoint M'ANDREW a kind of "Laureate," whose brilliant compositions cast a reflected radiance on the State, being published as *official* documents with the public money :

ASHLAND, ———, 1866.

A. B. TATE—DEAR SIR : Through the medium of your paper, permit me courteously to express my very kind thanks to my friends for their kind consideration in tendering me their support, at their request as candidate for Justice of the Peace in the East Ward.

To my friends I beg leave to say, that during my domiciliate of 27 years in the country and a citizen 21 years, I have not been a dissident in politics etc. —neither biased or influenced through fear or favor, of rich or poor, for place or pay, but always conducted myself unobstrusively and silently; viewing low politicians their measures and reforms—as baleful absurdity, and the only apple of discord I see from my humble stand point throughout our most hospitable country, political deviators from our benign constitutional prorogative alienators from the immediate influence of honest purposes, whimsical abettors of ridiculous fancies, their crubiscent falsehood has given the hell-born fiat to latitudinarian agitation, planting the seeds of discord, choaking up the social channels of friendly confidence between the rich and poor. I cannot be of such, but always shall appear before you with as much modesty and as little presumption as are consistent with the character which is necessary for one of my humble situation to assume ; with aims as far from mercenary ends ; a mind naturally unassuming, motives untrammeled by prejudice or partizan aims. Trusting to your confident and indulgent approval, my chief dependance rests on truth and justice, and on your generous and impartial judgment—and should I discharge my duties otherwise, in that case I should think the most liberal should cry me down. Again I express my regards to my fellow-citizens, and respectfully Your obedient servant, P. F. M'ANDREW.

ON THE SHRINKAGE OF PIG IRON—AN INQUIRY.*

By A. B. CORNELL, Youngstown, O.

IT is the general supposition that the presentation of a paper to the notice of such a body as this, implies that the author has some important idea or information which he proposes in that way to communicate; or, at least, thinks he has. In order that there may be no misapprehension upon this subject I desire to state in the beginning that I am very ignorant upon the subject which I introduce, and that my sole object is to obtain, and not to impart, information.

In attempting to make a foundry pig iron which should be acceptable to foundrymen, I am constantly met by the allegation that most of the pig iron made in the West is very objectionable, on account of excessive shrinkage in cooling, and much of it also from a lack of fluidity. In these respects, the iron, widely known as Scotch pig, is cited and regarded as a standard of excellence.

It is an important question therefore, to what are these qualities due in Scotch pig, and what is the occasion of their absence in our Western irons, notably those made from the rich ores of the Lake Superior region, and of Missouri. A stove manufacturer of Troy, says there is no Western iron made that he can use ; a condemnation based, however, like the Irishman's curses, upon general principles, and not, I think, upon any extended experiments, inasmuch as a good deal of iron *is* made, even in Ohio, which has all the desirable qualities of Scotch black band iron, and, very generally, in such cases, the undesirable qualities, also, being deficient in strength.

But, why does iron, made from rich Lake Superior ores, almost entirely free from phosphorus, and containing but very little sulphur, shrink more in cooling, after being melted, than the weak, siliceous irons made from black band ores?

In attempting to investigate it, attention was first drawn to the smaller content of silicon as being a possible reason. But, analyses of various specimens, compared with their general reputation, seemed to disprove this theory, the content of silicon and the amount of shrinkage seeming to have no such relation to each other as to warrant their connection as cause and effect.

It is, I believe, admitted, that soft irons shrink less than hard or high irons, and there has, on that account, been a disposition to charge the result to the amount of carbon, but, as it is apparently established, that white iron has not, necessarily, a less amount of carbon than gray iron, that theory, it seems, cannot be sustained, although a gentleman, who is very a high authority in such matters, has suggested that the form in which the carbon exists may have some connection with the results.

Another suggestion is, that it is due to the varying crystalline structure of the metal, a subject, concerning which, I can say nothing, except, that it seems to be mere conjecture. I have just been told by a student that the text book on philosophy, which his class is studying, states that iron, like water, expands in solidifying. If this be true, it can apply, I think, only to the *moment* of solidifying. This would mean that, the contraction takes place, so far as practical results are concerned, after the metal becomes a solid, and would, in part, at least, remove from consideration the question of initial temperature, that is, the temperature of the iron when first poured into the mould.

Without further occupying your time on these crude suggestions and conjectures, I recur to the question : What is the cause of the varying degree of shrinkage noticed in irons made from different ores? Is it due to the presence, in greater or less quantity, of some of the foreign substances always found in pig iron, and, if so, which of them? Has it any necessary connection with the fluidity of the molten iron, or is that connection, which has been widely observed, only accidental? How can we make an iron of superior strength, with great fluidity and a minimum of shrinkage?

DISCUSSION.

Mr. METCALF said that during the war, from 1860 to 1865, he had charge of the Fort Pitt Foundry at Pittsburgh, where from 10,000 to 15,000 tons of pig iron were used annually for guns. The limits of density imposed by the government were from 7.24 to 7.28, and if the iron proved to be above 7.30, or below 7.22, the guns could be peremptorily rejected. The nominal minimum limit of tenacity was 30,000 lb. per square inch. The guns were cooled from the inside on General RODMAN'S principle, and it was required that when a section of the casting (through the end of the sprue-head) was cut nearly through from the outer circumference, and then broken open by a blow, a crevice should be produced, which should be wider on the outer than on the inner circumference, by an amount not less than 1-10, nor greater than 2-10 of an inch in a 15-inch gun. In order to secure the strongest and most reliable irons for this purpose, he had personally visited the furnaces at Richmond, Mass., the Ringgold furnaces in New York, and the Ringwood, in New Jersey, the Joanna, in Berks Co., Pa., and also those in the Juniata region and Cumberland Valley. He had, further, investigated the irons from Hanging Rock region, in Ohio, and those from Lake Superior, and from Iron Mountain, Missouri. These various irons, prepared from different ores and fuels, he had found to have very different properties, but he was not prepared to say from what peculiarities of chemical composition the properties resulted. The irons from Richmond, Mass., from Dutchess County, N. Y., Ringgold, Ringwood, and from the Hanging Rock region, he found of high tenacity, but with a tendency to shrink and crack. The hematite ores of Pennsylvania gave the highest tenacity, but they also were apt to crack. One sample of iron from the Juniata region, taken from an eighty-ton casting, showed a tenacity of 42,560 lb. per square inch. The ores of Lake Superior gave an iron which we could not use. Some of this iron, made at Vermilion Furnace, near Cleveland, when in the pig, deflected an inch or more before breaking, but when remelted and run in sand, cooled white. Missouri iron, too, even the softest charcoal varieties, chilled ¾-inch on cooling. The hematite irons do not chill well. The irons from magnetic ores were difficult to manage, and were apt to be honeycombed near the trunnions. For general foundry purposes he had found the charcoal irons from the Hanging Rock region the most suitable, but their tenacity—averaging about 28,000 ib. to the square inch—was generally 5,000 lb. per square inch less than the hematite irons. The Wassaic irons, from the Amenia ore beds, Dutchess County, N. Y., remained soft even after melting four or five times, and it would carry the addition of 3 to 1 of scrap iron. In shot and shell the government fixed the minimum strength at 25,000 lb. per square inch. This tenacity could not be obtained from the iron of the Hanging Rock region, even with the addition of Juniata irons, when the melting was effected in a cupola, but when melted in a reverberatory furnace, the desired result was obtained. In general, he had found that the strength of iron melted in a reverberatory furnace, was 5,000 lb. greater than when melted in a cupola. The amount of coal necessary for melting in a reverberatory was found to be, on an average for a year, when 11,000 tons were melted, about one-quarter ton of coal to ton of iron. In cast iron columns they had made for the Pittsburgh and Allegheny Bridge, 28 ft. 10 in. long, the greatest variation in length was not greater than ¼-in. This result was attained with irons from Hanging Rock region, but only by careful selection and regular working. Columns ten feet long, made of irons taken at random, had varied as much as ¾-inch in length. As a rule, the strongest irons showed the greatest strain on cooling, and were, hence, more liable to crack. And, further, cold short irons were less liable to crack than those that were red short. Again, the temperature of the iron when poured affects the shrinkage—the hotter the metal the greater the shrinkage. Strong gun irons cannot be used for small machinery castings. The selection of irons for guns was made from pigs that had been remelted, called iron of second fusion. These pigs were broken and stacked so as to exhibit their fractures from which the suitableness of the iron for guns was judged. A long experience had enabled him, by this means, to select with great closeness, irons giving the proper density when cast in guns. Mr. METCALF concluded by appealing to the members to investigate this subject, and determine laws which determine the physical properties of iron.

Mr. A. L. HOLLEY said that the United States Test Commission was engaged on work of this character, and he expected that it would soon throw great light on the subject. This Commission, though the outgrowth of the Society of Civil Engineers, he hoped would have still closer relations to the Institute of Mining Engineers.

* A paper read before the American Institute of Mining Engineers, at the Cleveland meeting, October, 1875.

REPORT OF INSPECTIONS,

Made by the Hartford Steam Boiler Inspection and Insurance Co., for the months of September, October, November, and December, 1875.

THE number of visits of inspection made during these months was 6,103. Number of boilers examined, 11,853. Internal examinations, 3,653. External examinations, 11,320. The hydraulic pump was used in 1,001 instances, mostly in connection with new boilers. The weaknesses and defects discovered were 5,687, of these 1,157 were of a dangerous character and needed early attention. This number seems large, but when the number of boilers examined is considered it does not seem extravagant. It is nothing uncommon to find a boiler running with loose braces or broken stays. It may not explode, still it is a condition inviting accident. A crack may be discovered along the line of rivets, of a seam near the fire surface, it may not leak yet, but it puts the boiler in dangerous condition. So there are many similar things that go to make up the aggregate of defects. Among the defects found were 279 Furnaces out of shape and in bad condition—of these 25 were regarded as dangerous. Fractures, 458—191 dangerous. Plates injured by overheating, 318—111 dangerous. Blisters resulting from a want of homogenity in the iron of the plate, 815—90 dangerous. Cases of Deposit of Sediment, 740. In some instances the deposit was so heavy that the boiler was in great danger of being burnt if it was not already injured —133 of these cases were reported as dangerous. Incrustation and scale, 932—118 dangerous. External corrosion, 318—99 dangerous. Internal corrosion, 176—36 dangerous. Internal grooving, 59—13 dangerous. Water Gauges defective, 257—44 dangerous. Defective Blow-out Apparatus, 81—30 dangerous. Safety Valves overloaded and out of order, 166—58 dangerous. Pressure Gauges defective, 715—132 dangerous. The variations from the standards were from —40 to +70. The variations from —5 to +12 or +15 were quite numerous. These show an alarming unreliability in Steam Gauges, when neglected and left to themselves. In establishments where the pressure of steam used is uniform, Gauges are not liable to these extreme variations ; and we will further say that well made gauges are rarely found in so bad condition unless they have been grossly neglected and abused. It would seem, that with all the light there is in these days bearing upon the use of steam, no man would run a boiler without some means of indicating the pressure of steam used. Yet we have found 210 cases where no steam gauge was used. Two of these were in connection with boilers running at high pressure and were consequently regarded as dangerous. Cases of Deficiency of Water, 49—21 dangerous. Broken Stays and loose Braces, 114—54 dangerous. Boilers condemned, 33.

SELECTED LIST OF PATENTS.

FOR THE WEEK ENDING FEB. 18, 1876.

Relating to Mining, Metallurgy, Gas Making, Engineering, etc. Reported for the "Engineering and Mining Journal" by Louis Bagger & Co., Solicitors of Patents, Washington, D. C.

172,836. Cupola-Furnaces, E. Voisin, Bourges, France.—These are specific arrangement and relative to size of tuyeres, whereby gases are all consumed inside of the furnace. No flame projects at the throat of the furnace. Molten metal sets back into a rear reservoir, and when drawn off floats out over the bottom of the furnace.

172,864. Brick-Machines, C. S. Bigler, Harrisburg, Pa.—Clay is forced from the hopper successively into the recesses within the mold-table, by the revolution of which the brick is compressed, and the surplus clay planed off by a knife connected to the frame. By means of the ascending ways the brick gradually emerges from the mold-table, and is swept off by the sweep on to the rest-table, and thence on the carrying-belt.

172,873. Time Signals for Railways, H. H. Ford, Sanford, Me.—The passing trains operate mechanism to turn a signal wheel, which has sand running from one compartment to another, to indicate approximately the time since the wheel was turned.

172,875. Machines for Mining Coal, etc., Jas. Gallicher, Canton, Ohio.—A tooth-wheel on a horizontal axis gears with a pinion, the shaft of which, by a crank, reciprocates horizontally a saw, the whole in a frame on ways. The feed movement is given by a screw-threaded drum (forming part of the main tooth-wheel) gearing with a line of teeth on the floor, and paralleled with the ways.

172,881. Gas Taps, Francis St. J. Jones, College Yard, Worcester, England. A spiral spring attached to the handle serves to keep the plug in its seat, and also locks the plug when closed.

172,877. Water Pressure Regulators, Edward Hays, Rochester, N. Y.—A fixed cap is arranged over the inlet opening to the valve-chamber, to protect the flexible diaphragm.

NOTES.

COMPRESSED AIR LOCOMOTIVES.—An improved compressed air locomotive has been invented by M. LEON RIBOURT, of Altdorf, Switzerland. The locomotive has, instead of a boiler, a large and strong reservoir, which is charged with compressed air, and having large cylinders so as to work with moderate pressure under that of the partly exhausted reservoir. Between the main reservoir and the cylinders are placed the regulating apparatus and a small subsidiary reservoir in the course of the pipe from the regulator to the cylinders. The regulator consists of two pistons connected together to work in a cylinder, open at one end to the air, and at the other end communicating with the subsidiary reservoir, while the middle space, between the two pistons, communicates with the main reservoir, and also by side holes with the subsidiary reservoir, these holes being governed by a slide attached to the pistons. The pistons are pressed inwards by the atmosphere and by an adjustable spring, and outwards by the fluid at the working pressure in the subsidiary reservoir, and according as the latter pressure exceeds or falls short of the atmospheric pressure, aided by this spring, so the slide covers or uncovers more or less the holes in the cylinder; and thus, notwithstanding considerable variation of pressure in the main reservoir, the working pressure in the subsidiary reservoir is maintained constant, or nearly so, and within limits may be varied by altering by an adjusting screw the force of the spring.—*Chicago Railway Review.*

GALENITE.—The Abbé MOIGNO, in *Les Mondes* recently called attention to a chemical product called *galenite*, which he considers likely to replace both white lead and red lead in the arts. The substance is manufactured from galena, a sulphuret of lead, and can be produced, according to the inventor, at a low price, say from 25 to 30 per cent. less than the bodies just mentioned. Galenite, as described by MOIGNO, is of a grayish yellow color, with a density nearly the same as that of white lead, but has the special property of readily uniting with pure or non-litharged linseed oil in small quantities, to form an extremely fat drying-paste, which, when diluted subsequently with oil, may be applied, like white lead, to surfaces of plaster or of wood, or, like red lead, to iron and other metals, possessing great advantages, however, over these substances, both in covering power as well as in solidity and cheapness. Galenite mixes readily with all ochres, and consequently can be substituted for white lead in painting in colors. With oil it forms a mastic, which can be employed without the use of any other agent in cementing the joints of machines for resisting the greatest pressure of air or water. It preserves metals from oxidation with more energy than red lead, and can be employed equally with this latter in painting large surfaces of metal. United with carbonate of lime (whiting or chalk) and oil, it forms mastics or *putties*, which when spread over plaster with the knife acquire great hardness, and after being sand-papered assume the smoothness and polish of marble. The Abbé also claims that the results of experiments give promise that it will be especially serviceable in painting such surfaces of wood or metal as are submerged in water, adhering to them with great tenacity, and probably preventing the attacks of barnacles, oysters, teredos, etc. The precise method of manufacturing this new and important substance is not stated. It has, however, been lately patented by its inventor, M. JULES DAVID.

CEDAR MINES.—We have described gold and silver mines, those of diamonds and other precious stones, ores and useful minerals, and even of peat—but we go a step further now and report a cedar mine. "Among the strange productions of Cape May," says The Monmouth (N. J.) *Democrat*, "are the 'cedar mines,'—swamps of dark miry stuff, in which are buried immense trees of the white cedar, *Cupressus thyoides* of the botanists. These mines contain enormous trees, buried to a depth varying from three to ten feet. The logs lie one across another, and there is abundant evidence that they are the growth of different successive forests. Indeed, in these very swamps, forests of the same trees are now growing. The miners become very skillful at their work. An iron rod is thrust into the soft mud, over which often the water lies. In striking a buried tree, the workman will, by several soundings, at last tell how it lies, which is its root-end, and how thick it is. He then manages to get a chip of the tree, and by its smell determines at once whether it is worth the labor of mining; that is, the workmen will tell unerringly whether the tree be a windfall or a break-down. If a break-down, it was so because it was decayed when standing; if a windfall, the tree fell when sound, and has been preserved ever since by the antiseptic nature of the peat marsh in which it was buried. The soft earth is then removed. This makes a pit in the swamp. Into this the water soon flows, and fills it up. This is rather an advantage. The saw is now introduced, and at regular intervals a cut is made through the tree, when the log floats to the surface. It is curious that the log of a sound tree will be sure to turn over when it floats up, the lower side thus becoming uppermost. Trees in this way are sometimes obtained which will yield ten thousand shingles, worth twenty dollars per thousand; thus one tree will yield two hundred dollars. The age of such a tree, as the season rings have been counted, has been made out from one thousand to twelve hundred years, and even more. A layer of such trees is found covered by another layer, and these again by another, and even a third, while living trees may still be growing over all."—*Inter-Ocean.*

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative Statement for the week ending Feb. 19.

Tons of 2,240 lb.	1876.		1875.	
	Week.	Year.*	Week.	Year.*
Wyoming Region.				
D. and H. Canal Co	†	240,866	52,675	334,073
D. L. and W. RR. Co.	†	207,912	37,700	238,951
Penn. Coal Co	25,783	157,562	17,179	155,816
L. V. RR. Co.		114,447	23,833	155,543
P. and N. Y. RR. Co.		3,352	42	42
C. RR. of N. J.	7,166	114,449	355	17,141
	32,952	839,478	131,784	901,566
Lehigh Region.				
L. V. RR. Co	11,405	203,65.	3,764	81,828
C. RR. of N. J.	1,393	138,833	127	494
D. H. and W. B. RR.	1,979	5,478	663	2,398
	14,774	347,962	4,554	84,720
Schuylkill Region.				
P. and R. R. RR. Co.	6,034	251,222	19,930	93,457
Shamokin & Lykens Val.	579	24,365	11,800	58,750
	6,613	278,587	31,730	154,207
Sullivan Region.				
Sul. and Erie RR. Co.	1,299	8,029	238	1,584
Total	55,638	1,474,056	168,306	1,142,077
Increase	..	..	..	..
Decrease	..	..	..	..

* Year beginning January 1st.

These reports have not been received for two weeks.

The above table does not include the amount of coal consumed and sold at the mines, which is about seven per cent. of the whole production.

The receipts at Port Richmond for the week were 125 tons, payments 4,500 tons, and balance on hand 135,000 tons.

The decrease of shipments of Cumberland Coal over the Cumberland Branch and Cumberland and Pennsylvania Railroads amounts to 568 tons, as compared with the corresponding period in 1875.

At Amboy business:

	Tons.
Received for the week	1,765
Shipped for the week	3,151
On hand Feb. 19	92,857

Receipts of Coal at Boston for week ending Feb. 18, and years from September 1st, 1874 and 1875.

From	Week. Tons.	Previously. 1876. Tons.	1875. Tons.
Alexandria and Georgetown	—	53,052	45,700
Philadelphia	3,570	335,902	246,532
Baltimore	1,080	71,593	69,644
Other places	2,156	144,556	99,487
Great Britain	1,181	1,329	1,733
Nova Scotia	—	12,851	14,105

The Exports of Coal from Baltimore for the week were 2,145 tons, and since Jan. 1st, 3,557 tons, as against 6,223 tons for the corresponding period of 1875.

Belvidere Delaware RR. report.

	Week.	Year 1876.	Year 1875.
Receipts of coal at Coal Port (Trenton)	1,937	6,520	..
" " " South Amboy	3,764	80,767	16,095
Shipments at Coal Port (Trenton)	—	..	..
" South Amboy	5,036	37,718	31,579

The Production of Bituminous Coal for the week ending Feb. 19, was as follows:

Tons of 2,000 lb., except where otherwise designated.

Cumberland Region, Md.	Week. Tons.	Year Tons.
Tons of 2,240 lb	13,655	127,200
Barclay Region, Pa.		
Barclay RR., tons of 2240 lb	3,525	45,654
Broad Top Region, Pa.		
Huntingdon and Broad Top RR	2,321	19,191
*East Broad Top	1,342	7 776
Clearfield Region, Pa.		
*Snow Shoe	857	4,784
*Tyrone and Clearfield	16,225	88,895
Allegheny Region, Pa.		
*Pennsylvania RR	3,334	20,227
Pittsburgh Region, Pa.		
*West Penn. RR	3,806	22,073
*Southwest Penn. RR	1,357	7,492
*Penn. & Westmoreland gas coal, Pa. RR.	11,493	70,189
*Pennsylvania RR	7,926	37,541
Kanawha Region, W. Va.		

* To Feb. 7.

The Production of Coke for the week ending Feb 7.

Tons of 2000 lb.	Week. Tons.	Year. Tons.
Tyrone and Clearfield	..	..
Alleghany Region	..	..
West Penn. RR	600	4,483
Southwest Penn. RR	6,807	42,794
Penn. & Westmoreland Region, Penn. RR.	750	3,702
Pittsburgh, Penn. RR	3,764	23,624
Total	11,921	74,703

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Feb. 25, 1876.

Anthracite.

The few cold days of this week have had no perceptible effect in improving the demand from the mining companies. The season's business has not begun, nor is it likely that much will be done until after April 1st, at which time the allotments will be made to such consumers and contractors as have entered their applications for coal to be delivered throughout the season, and are considered worthy.

In our editorial pages we discuss quite fully the programme of the Combination Companies. Where the middlemen will stand cannot be known until it is ascertained to what extent the companies accept contracts from consumers and dealers. The Delaware and Hudson Canal Company, has fixed a minimum quantity as necessary to entitle a consumer to make a yearly contract; the Lehigh Coal Exchange has not issued a consumers' circular, and is not likely to do so. The other members of the Combination claim the right to put the broadest construction on the agreement as signed. We give below certain circulars, supplementary and explanatory to the programme:

Consumers' Contract Circular, No. 1, 1876.

OFFICE OF THE PHILADELPHIA AND READING COAL AND IRON COMPANY.

The Philadelphia and Reading Coal and Iron Company is now prepared to contract with actual consumers of lump, steamer, broken, or chestnut, (hard or free burning white ash coals,) until March 31st, for delivery during the season of 1876, at the prices named below, on vessels at Port Richmond. (Prices 35 cents per ton lower than consumers' prices at New York.)

All applications for such contracts must be made prior to March 31st, and if accepted by the company, the applicant will be notified of such acceptance on the first of April next.

The coal may be taken throughout the year in equal monthly proportions, or on any one or more months as the applicant may desire; provided the application states the manner in which it is to be taken.

No contractor will be allowed to transfer his contract or deliver the coal to any other party, and a violation of this contract will cancel the contract for all coal not already delivered.

The quota for any one month is to be taken in equitable proportions during the month. But if for any cause the quota of one month is not delivered in such month, the remainder thereof if taken in a subsequent month must be at the proper price for such month. It being understood as part of the contract that the deliveries of any month shall be charged at the proper price for such month.

All sales subject to our printed conditions, which are as follows:

1. Every contract for the sale and delivery of coal is to stand upon its own merits as regards prices, terms, &c.

2. The coal is designated by the names known in the Company's business; those names are used in selling or quoting prices, and parties are particularly requested to make use of the same in giving their orders.

3. Captains of vessels going to Richmond for cargoes must carry with them an order from one of the Company's officers, or from a purchaser who has made previous arrangements with the Company for the delivery of coal.

4. Captains are required to report their vessels at the Company's office at Richmond on their arrival; to take the berths assigned them by the dock-master, and to await their regular turn in loading. Exertions will be

made to give all vessels prompt dispatch; but the Company is not to be answerable for demurrage, nor for any of the consequences arising from delay or detention.

5. Coal when shipped on board of vessels is to be considered as delivered to, and thereafter at the risk of the purchaser. Bills of lading, receipts, or other evidences of shipment to be proof of delivery, both as regards time and quantity.

6. Reasonable exertions will be made by the Company to fulfil its contracts for the delivery of coal; but if at any time the operations or business of the Company at the mines, or on its railroad or canal, shall be interrupted by floods, breaks, accidents, or by combinations, turn-outs, or strikes among the miners, boatmen, or other employees, either for an increase of wages or on account of a reduction thereof, or for any other cause, or by casualties of any kind, the obligations of the company to deliver coal under its contracts or agreements may, at its option, be cancelled to the extent of the average daily quantity the purchasers would be entitled to receive under their contracts or agreements during the period of such interruption; and the company shall not be liable for damages by reason of such non-delivery, or for demurrage of vessels or otherwise.

7. All sales to be made for cash, or with seven per cent. interest added in all cases for any deferred payment—the interest to commence from the date of bill of lading; and all deliveries of coal will be charged at the circular prices current in the month when the delivery is made; and under no circumstances will any coal shipped in one month be charged at the circular prices of a preceding month, unless the purchaser had a vessel at the shipping port ready to receive the coal before the expiration of the previous month, and was also actually entitled to receive the coal during such previous month.

8. The company, when requested by purchasers, will use exertions to procure vessels for the transportation of coal and to effect insurance thereon, but in so doing will not assume, nor is it to be charged with, any responsibility in relation thereto.

9. The purchaser is not to have the right to claim in any one month more than a ratable proportion of the whole quantity of coal engaged Should the company, however, at the purchaser's request, deliver any coal in excess of such proportion, such excess is to be charged at the prices of the current month, and to be received by the purchaser on account of coal deliverable in the next following month in which he signifies his desire or intention to accept his quota at the prices fixed by the Company.

10. Any neglect or failure on the part of the purchasers to send for their coal in the month when it is deliverable, forfeits their right to claim it at any subsequent period. When the quota engaged for any one month exceeds one thousand tons, the purchaser will be expected to take it away, as nearly as may be, in regular weekly proportions.

The following is the substance of the

Contractor's Application Circular, No. 1, 1876:

OFFICE OF THE PHILADELPHIA AND READING COAL AND IRON COMPANY.

The company is now prepared to receive prior to March 31st, 1876, applications for the purchase of a stated quantity of coal, to be taken in equal monthly proportions, at the current Contractors' Circular prices throughout the year, with the right to the purchaser to decline to take the proportion due in any one month; but such declination shall not give him the right in any succeeding month to take an increased quantity in lieu of that so declined.

Should any such application be accepted, the applicant will be notified of such acceptance immediately after the first of April.

And to all such accepted applicants, a monthly Contractors' Circular price will be made 20 cents less than the current monthly prices to purchasers who have made no application or whose applications have not been accepted.

Prices will be established on or about the 20th of each month for the following month, and contractors will be expected on or before the first of the month to notify the company of their intention to take the Coal allotted to them for that particular month A failure to receive such notice will considered by the company as evidence that the prices are not acceptable to the purchaser, and that the coal is declined.

Although the failure or declination to take the quota of any one month shall not prejudice the right of the applicant to take the quota of any succeeding month.

The trade circular of this company contains the following:

"The following prices will be charged for coals mined by this company, deliverable on board vessels at Port Richmond, Philadelphia, for the month of March, subject to our printed conditions.

"The company reserve the right to withdraw or change these prices at any time during the month, except on sales made prior to such changes.

	Lump.	Steamer.	Broken.	Egg.	Stove.	Chestnut No. 1	Chestnut No. 2.
Hard White Ash Coal..	$4.25	$4.35	$4.45	$4.55	$5.15	$4.35	4.00
Free Burning White Ash Coal.....	4.25	4.35	4.45	4.55	5.15	4.35	4.00
Schuylkill Red Ash	....	....	....	4.65	5.25	4.35	....
Shamokin	....	....	....	5.65	5.25	4.35	....
Lorberry	....	....	5.35	5.35	5.35	4 40	....
Lykens Valley.....	....	....	5.75	5.75	5.75	4 85	....

The only important difference in the other circulars issued, so far as we have seen them, exists in the Delaware and Hudson Canal Company's consumers' circular, which says:

"This company will contract with such of its customers as are owners of steam vessels, or manufacturers, for actual consumption by themselves, in lots of not less than 10,000 tons, for a portion of its production of the lump, steamer, grate, and chestnut sizes, during the season of navigation of 1876, at the prices named below," etc.

We hope to refer again to these matters in our next, when all the circulars will be issued.

Bituminous.

There is nothing worthy of note doing in these coals, although the trade will, probably, be pretty actively canvassed before the 1st of April.

Gas Coals.—We note some large sales of Westmoreland coal for New England shipment, at $4.25 f.o.b. at Philadelphia, equal to about $5.60@5.75 delivered, or 25 cents to 40 cents under the cost of the same coal in this city.

Wholesale Prices of Anthracite Coal for Feb. f.o.b. at the Tide Water Shipping Ports per ton of 2240 lb.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
Wyoming Coals.						
Lackawanna and Scranton at Hoboken and Weehawken...	4 65	4 65	4 75	4 95	5 50	4 70
Pittston at Weehawken	4 50	4 50	4 60	4 80	5 35	4 55
Wilkesbarre at Port Johnston.	4 65	4 65	4 75	4 95	5 50	4 70
Plymouth, R. A., *Net*	....	....	4 75	4 95	5 50	4 70
Susque. Coal Co. at Amboy W.A.	4 65	4 65	4 75	4 95	5 50	4 70
Kingston at Hoboken.....	4 65	4 65	4 75	4 95	5 50	4 70
Lehigh Coals.						
Old Company at Port Johnston	5 25	....	4 90	5 00	5 50	4 85
Old Company's Room Run "	5 25	....	4 90	5 00	5 50	4 85
§Sugar Loaf, Hobok. &Amb."	5 25	....	4 90	5 00	5 50	4 85
Lehigh Coal Exchange "	5 25	....	4 90	5 00	5 50	4 85
Honey Brook Lehigh	5 25	....	4 90	5 00	5 50	4 85
Beaver Meadow at South Amboy	5 25	....	4 90	5 00	5 50	4 85
Schuylkill Coals at North 9th st., Brooklyn, E. D.						
Schuylkill white ash.....	4 65	4 65	4 75	4 95	5 50	4 70
Schuylkill red ash	...	....	....	5 05	5 55	4 70
Shamokin white and red ash..	....	...	....	....	5 70	4 75
Lorberry.....	....	...	....	....	....	....
Lykens Valley.....	....	....	6 40	6 40	6 40	...

Per ton.

Freight from	Hoboken and Weehawken to New York....	40c.
" "	Elizabethport & Port Johnston to N. York.	45c.
" "	South Amboy to New York.....	50c.

Wholesale Prices of Bituminous Coal.

Domestic Gas Coals.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Penn. at Greenwich, Philadelphia.....	$4 50	$5 co
" " at S. Amboy....	5 50	6 co
Red Bank Cannel Pa. at Philadelphia....	8 00	8 50
" " South Amboy..	8 50	...
" Orrel.....	6 00	6 50
Youghiogheny, Waverly Co., at Balt....	4 25	5 75
Despard, West Va., ...	4 50	6 00
Murphy Run, West Va., at Baltimore..	4 50	6 00
Fairmount, West Va., " " ...	4 50	6 co
Newburgh Orrel, Md. " " ..	4 50	6 00
Cannelton Cannel, W. Va., at Richmond.	9 co	10 50
" Splint, " "	4 50	6 00
Peytona Cannel, " "	8 75	10 50
Straitsville " at Sandusky, O.....	nominal.	

Manufacturing and Steam Coals.

Cumberland, at Georgetown and Alexandria, Va	4 00@4 25	5 25@5 50
Cumberland, at Baltimore.....	4 25@4 35	5 75@6 co
Broad Top, at the mine, per 2,000 lb., 1 10. f. o. b. Greenwich, Philadelphia, per 2240 lb., 3 90, 4 00. 4 25 and 4 50, according to destination; at Amboy, 5 00; New York, 5 45.		
Clearfield and Allegheny, "Kittanning," "Sterling," "Sonman," and "Eureka," at the mines, per 2000 lb, 90; at Greenwich, Phil., per 2240 lb., 3 90, 4 00, 4 25, and 4 50, according to destination; f. o. b. South Amboy, N. J., 5 00; New York, 5 45.		

Foreign Gas Coals.

	Sterling.	Am. cur'cy.
Newcastle, at Newcastle-on-Tyne.....	9/6@11/	6 50@ 7 00
Liverpool House Orrel, at Liverpool....	26/	13 00
Ince Hall Cannel " ...	42/	18 00@20 00
" Gas Cannel " ...	28/	13@14
Scotch Gas Cannel, at Glasgow, nominal,	25/ Gold.	7 50
Block House, at Cow Bay, N. S.....	2 00	5 co
Caledonia, at Port Caledonia.....	1 75	4 75
Glace Bay, at Glace Bay.....	1 60	4 75
Lingan, at Lingan Bay.....	1 75	....
Sydney, International and Reserve mines, at Sydney	2 00	5 50
Pictou, Albion & Vale mines, at Pictou.	2 25	5 75

Retail Prices in New York.

Anthracite.

Per 2000 lb.	Grate and Egg.	Stove.	Chestnut.
Pittston coal, in yard.....	$5 50	$5 80	$5 00
Lackawanna coal, delivered	6 25	6 50	6 00
Wilkes-Barre, "	6 75	7 00	6 25
Lehigh & Locust Mountain, del'd..	7 00	7 25	6 50
Schuylkill Red Ash, del'd.....	7 50	8 00	

Our retail quotations of Pittston Coal are based on the actual selling rates of the company, nominal quotations of grate and stove are 20c., and of nut 30c. per ton above these rates. The Cost of delivery ranges from 40 cts. to $1 10 per ton, according to distance from the yard.

Bituminous.

Liverpool House Orrel, delivered, per ton of 2000 lb....	$23 co
Liverpool House Cannel " " " ...	†22 00
American " " "	15 co
Kanawha splint, " " "	15 00
American Orrel " " "	†21@24
Red Bank Cannel " " "	14 00
Cumberland " " "	9 00

† This quotation is furnished to us by Messrs. WARD, TALBOT & OLYPHANT.

Baltimore, Md. Feb. 22, 1876.

Reported by our Special Correspondent.

No change.

ANTHRACITE.

Wholesale or Trade Prices per 2240 lb.

Wilkes-Barre "Lee" or "Diamond," Pittston and Plymouth. White ash.	In cars at depot.	By boats afloat.
Lump and steamboat	$4 80	$4 65
Broken.....	5 55	5 40
Egg.....	5 92	5 77
Stove.....	6 17	6 02
Nut.....	4 97	5 10
Shamokin, (red or white ash), and "Boston," freeburning white ash,		
Egg.....	5 95	5 79
Stove.....	6 15	5 99
Lykens Valley, red ash,		
All sizes.....	6 55	6 37

From wharf or yard, wholesale, 50@75c. additional.
By retail, all kinds and sizes, per 2240 lb. $7 00@8 00.

BITUMINOUS.

George's Creek and Cumberland f. o. b. at Locust Point.....	4 15	4 50
West Virginia f. o. b. at Locust Point		5 50
Youghiogheny Gas, f. o. b. at Locust Point.....		5 50
Swanton Coal, George's Creek.....		4 40

Boston Feb. 19, 1876.

Coal has had a small week for business. The retailing yards seem to be finishing the season in the most demoralized sort of way, prices ranging from $7.50 to $8 delivered either w. a. or r. a. in stove and furnace sizes. The interest of the trade has been directed to the uncertainty of the Anthracite market for the coming year. The fact that brokers and shippers freely offered cargoes all the fall in this market 50c. a ton under the combination prices is suggestive that this is one of the leaks that the contracting Philadelphia parties will not be able to stop.

The feeler put out on the New York market, Friday afternoon last, that the combination price would be $3.75 at Philadelphia and $4.25 at New York for *broken* is here understood as a bid to the manufacturers, who have been using the Cumberland coals, to hold off on their next season's contracts; as Anthracite miners would likely make further inducements, as between $3.75 for broken hard at Philadelphia and $4. for soft steam coals at Baltimore, to those who have shifted from one to the other are not likely to make any change. In fact, if the advices from the various mines in the Cumberland district are to be relied upon, these producers are so allied to the Baltimore and Ohio Railroad and the Chesapeake Canal that they will be able to meet the competition the Anthracite miners may bring out to induce the very many steam users to return to their first love, hard coals.

This market has been thoroughly canvassed by both factions for contracts; but, so far as learned in the rounds of mill and manufacturing treasures, nothing has been signed.

The trade have gossiped considerably over the arrival of the steamer *City of Santiago* from Greeno k with 1180 tons coal. Six hundred tons were taken out and lightered at Chelsea; the balance was held as fuel for a trip to South America, the steamer being in berth now for that trade. Whether the 600 tons will come upon the market or be held on storage for future South American uses is in question.

The gas engineers' convention at the Tremont House failed to satisfy the coal dealers which vein, mine, or brand of coal, either foreign or domestic, was the most desirable for gas making. There was much interest shown in regard to the matter.

There has been literally nothing doing in freights. Charters are quoted at $1.90 from Philadelphia and $1.75@2 according to draft from Baltimore.—*Commercial Bulletin.*

Cincinnati, O. Feb 22, 1876.

Reported by our Special Correspondents.

Please quote following rates on coal here:

Per ton of 2000 lb.	Bush.	Ton.
Youghiogheny, or Pittsburgh, afloat.....	7½c.	——
Pomeroy coal..... "	5 c.	——
Kanawha " ..... "	7¼c.	——
Cannel coal, according to quality "	16 c.	——
Semi-Cannel..... "	7¼c.	——

The following are the retail prices delivered

Youghiogheny .....—c.	$3 00
Semi-Cannel.....—c.	3 50
Pomeroy .....11c.	2 50
Cannel .....—c.	5 50
Kanawha Semi-Cannel.....—c.	3 00
Anthracite ..... 10 oc@11 co	
Coke, at yard..... 7c.	——
Coke, hard and soft, delivered..... 10c.	——

Cleveland, O. Feb. 22, 1876.

Specially reported by Messrs. WARNER, BATES & Co.

WHOLESALE.

Per ton of 2000 lb. f. o. b. vessels.

	For vessels,	On cars.
Youghiogheny Gas Coal.....	$4 40	$4 15
Cannel	4 50	4 15
Blossburgh.....	5 00	5 00
Briar Hill Block Coal.....	3 80	3 60
Hocking Valley.....	3 25	3 10
Straitsville Coal Co., lower vein	3 25	3 10
Massillon	3 10	3 30
Tuscarawas Valley.....	2 85	2 70
Columbiana.....	2 80	2 60

RETAIL DELIVERED.

	Lump.	Nut.
Briar Hill	$5 00	$3 50
Massillon	4 50	4 00
Mineral Ridge	4 00	4 00
Columbiana	3 25	3 00
Straitsville Coal Co., lower vein,	4 00	3 00
Tuscarawas Valley	3 25	3 00

ANTHRACITE DELIVERED.

	Grate.	Egg.	Stove.	Chestnut.
Lehigh	$9 00	$9 00	$9 50	$9 25
Wilkes-Barre	8 10	8 10	8 50	8 25
Lackawanna	8 10	8 10	8 50	8 25

Detroit, Mich. Feb. 22, 1876.

Specially reported by Messrs. ROBINSON & KEYS, Dealers in all kinds of coal.

Per ton of 2000 lb.

Lehigh Lump, per ton	$10 50	Blossburg	8 50
Lehigh " prep.sizes.	10 00	Briar Hill	7 50
Wilkes-Barre, Grate and Egg	9 00	Willow Bank	7 00
Wilkes-Barre, Stove and Nut	9 50	Erie	50
		Massillon	7 00

Erie, Pa. Feb. 22, 1876.

Wholesale, per ton of 2000 lb. Bituminous f. o. b.

Briar Hill lump	$3 75	Beaver lump	$3 50
Midway	3 25	Cat Fish	3 00

Indianapolis, Ind. Feb. 22, 1876.

Specially reported by Messrs. COBB & BRANHAM.

We quote coal in our market as follows:

Wholesale on board cars, and retail delivered to consumers. Per ton of 2000 lb., bushel of 70 lb.

BITUMINOUS.

IndianCreek, per ton	$2 75	Peytona cannel, per ton.	7 00
White River, "	2 75	Indiana Cannel	6 50
Brazil Block, "	2 90	Hocking Valley	4 25
Highland, grate, "	2 50	Youghiogheny	4 75
Block coal, nut, per car.	18 00	Blossburg (smithing)	6 50
Highland " "	18 00	Piedmont "	6 50
Block Slack "	17 00	Gas coke, per bushel	10

ANTHRACITE (Lackawanna and Wilkes-Barre.)

Broken	$8 70	Nut	8 75
Egg	8 70	Stove	9 00

Lehigh Anthracite.

Broken	10 35	Nut	10 35
Egg	10 35	Stove	10 60

Retail, per bushel, delivered.

Sand Creek	16c.	Block Nut, steam	9
White River	14	" Slack, "	8
Brazil Block	15	Peytona Cannel	28
Highland grate	13	Virginia "	27
Block Nut, domestic use	12	Youghiogheny	22
Highland Nut, " "	12	Blossburg	26
" " steam	9	Piedmont	26

GAS COKE (measured.)

Crushed	15c.	Lump	12c.

ANTHRACITE.

Wilkes-Barre and Lackawanna (all sizes) ..... $9 75 per ton,
Lehigh, retail ..... $11 50 per ton.

Louisville, Ky. Feb. 22, 1876.

Specially reported by Messrs. BYRNE & SPEED.

WHOLESALE.

	per bushel		per bushel
Pittsburgh	10c	Pine Hill	—
Raymond City	9c.	Kentucky	—

RETAIL.

	per bushel		per bushel
Pittsburgh	14c.	Peytona Cannel	20@22c.
Raymond City	13c.	Buckeye "	—
Pine Hill	13c.	City-made Coke	11c.
Kentucky	12c.	Anth., per ton, $10 00 to 10 50	

Screened Pittsburgh per load $3 00
Screened Raymond City 2 75
Pine Hill (Kentucky) 2 75
Cannel ..... $5 to 5 50

Milwaukee, Wis. Feb. 22, 1876.

Specially reported by Messrs. R. P. ELMORE & Co.

Retail price per ton of 2000 lb.

Lehigh Lump	$10 00	Briar Hill, select	$8 00
Lehigh Prepared	11 00	Blossburgh	8 00
Lackawanna (all sizes)	10 00	Cannel	8 00
Pittston	10 00	Pittsburgh	7 00
Scranton	10 00	Steam coal	5 00

New Orleans, La. Feb. 22, 1876.

Specially reported by Messrs. P. & R. DE VERGES, Wholesale and Retail Dealers in Pittsburgh, Anthracite, Cannel and other Coals.

Pittsburgh coal, retail, per bbl	55c.
" wholesale	28c.
" steamboats, per box	50c.
" to manufacturers, per bbl	45c.
" shipments, per hhd	$6 00
Anthracite, wholesale, per ton	....
" retail, "	....
Virginia Cannel, per bbl	80c.
Scotch " "	80c.
Mt. Carbon, wholesale, per bbl	....
" " retail, "	....
St. Bernard, wholesale, per bbl	50c
" retail, "	....

Richmond, Va. Feb. 22, 1876.

Specially reported by S. H. HAWES, Dealer in Coal.

Per ton of 2240 lb., f.o.b.

Kanawha Cannel	$9 00	New River Bituminous,	$4 50
" semi-Cannel	4 75	Clover Hill Coal	4 00
Coalburgh Splint	4 75	James River Bitum	3 30
Lewiston "	4 75	" " Carbonite,	5 80
Kanawha Gas coal	4 50		

San Francisco, Cal.

From the *Commercial Herald*, Feb. 10, 1876.

Imports from Jan. 1st to Feb. 1st:

	tons.		tons.
Anthracite	3,693	English	5,502
Australian	5,472	Vancouver Island	5,737
Coos Bay	4,478	Rocky Mountain	64
Cumberland	2,044	Seattle	6,835
Mt. Diablo	8,653	Bellingham Bay	2,675

We are without further arrivals from the Colonies, and the market for this description continues strong. We quote Australian, $10 25@10 50 ex ship. Arrivals embrace 1850 tons Nanaimo per *Arkwright*, 500 tons Bellingham Bay per *Amethyst*. The supply of Cumberland is well controlled, and in casks held at $22; bulk, $18. Lehigh is plentiful and prices nominal. We quote Bellingham Bay at $8 50; Coos Bay, $10; California Mt. Diablo Steam, $6 25@8 25 for fine and coarse respectively; English and Scotch Steam, $9 50@10; Nanaimo, $9 50@10; Seattle, $9 50@10; Anthracite, $12@15; Lehigh, $14@15; Wellington, $10 50@11.

Toledo, Ohio. Feb. 22, 1876.

Specially reported by Messrs. GOSLINE & BARBOUR.

Per ton of 2000 lb. on cars.

Hocking Valley	$3 40	Massillon	4 00
Straitsville	3 40	Youghiogheny	5 00
Shawnee	3 40	Blossburg	7 00@7 50
" nut	2 90	Cumberland	7 00@7 50
Briar Hill	5 50	Connellsville coke	7 00

ANTHRACITE.

Grate, screened	$7 50	Stove, screened	$7 75
Egg, "	7 50	Chestnut "	7 50
Lehigh Lump	9 00		

40 cents to $1 per ton additional for delivery at retail.

Halifax, N. S. Feb. 22, 1876.

Prices per ton of 2240 lb. in gold.

Sydney (old mines)	$4 00	Little Glace Bay	3 35
Gowrie	2 35	Blockhouse	3 35
Victoria	—	Albion (at Railroad)	4 00

Toronto, Ont. Feb. 18, 1876.

Chestnut	$7 25
Stove	7 50
Egg and grate	7 75
Bituminous coal for domestic use	6 00
" " steam	3 50@5 50
Lehigh Lump and broken	7 50
Blossburgh	6 50

Montreal. Feb. 18, 1875.

Specially reported by Messrs. ROBERT C. ADAMS & Co.

Wholesale per ton of 2240 lb.

Scotch Steam	$6 00	Cape Breton Steam	$5 25
Pictou "	5 75	Newcastle Smiths	7 50

Anthracite at retail, per 2000 lb., delivered.

Egg	$8 50	Chestnut	8 50
Stove	9 50		

Rates of Transportation on Anthracite Coal to Tide Ports.

Lehigh and Wyoming Coals. per ton of 2240 lb.	From Penn Haven.	From Mauch Chunk.	From Hazleton**	From Upper Lehigh.	From Ashley and Sugar Notch.	
To ‡ Newark, N. J. (117 miles), via Central Railroad of New Jersey	2 41	2 27	2 74	2 74	2 97	
‡ Mauch Chunk, Pa., via Central Railroad of N. J.	14	..	56	47	71	
‡ Philipsburg, N. J., (46 miles)	91	77	1 25	1 25	1 58	
Elizabethp't, (114 m) Pt. Johns., Hoboken & South Amboy, N. J., shipping and wharfage 35c. add.	2 05	1 91	2 40	2 38	2 61	
High Bridge, N. J.	2 40	1 95	2 80	2 54	2 72	
Elizabeth, Cranford, Westfield & Elizabethport, for consumption,	2 41	2 27	2 74	2 74	2 97	
Jersey City, N. J., (121 miles) and New York, via L. V. RR	2 85	2 40	3 17	3 24	3 54	
Andover, via Delaware, Lackawanna and Western RR	3 30	3 10	3 70	3 69	3 99	
Trenton Somerset Junction and Greensburg, via P. RR. Belvidere Division	2 65	2 45	3 05	3 04	3 34	
Trenton, (97 m.) for shipment, including shipping and wharfage	2 11	1 95	2 45	2 46	2 76	

From *Mauch Chunk* to *New York* (121 miles), (towing limits) and Jersey City† via Lehigh Valley RR. $2 37

From *Mauch Chunk* to *Philadelphia* (93 m.) via L. V. and L. and S. RR. and North Penn. RR 1 75

††From *Phillipsburg, N. J.* to *Hoboken* (84 m.) for shipment via Delaware Lackawanna and Western RR., Morris and Essex Division 1 14

From *Lackawanna Junction* to **Auburn, N. Y.*, (191 m.) for shipment, via Southern Central R.R. in connection with Pa. and N. Y. R.R. 2 53

From *Lackawanna Junction* to *Weedsport* (201 m.), for *Rochester and Charlotte* 2 59

From *Lackawanna Junction* to *Sterling* for *Oswego, N. Y.* .. 2 62

‖ To this point for all places between Rochester and Buffalo the rate is 2 53

* The rate to this point for Syracuse is 2 02

** Rates on line coal from Hazleton are 10c. per ton above these figures.

‡ The cost of unloading is to be added to these rates. No charge less than 40c. per ton will be made for any distance. Tolls from Mauch Chunk to Phillipsburg for way points will be $1 15 per ton.

§ Twenty cents per ton less when five cars at a time to one party. Provided that where the reduction makes the rate $1 a ton, or less, the rate will be $1.

† Transportation on Coal destined for re-shipment from this point is 20c. less than above rate.

†† The rate for consumption to this point is $1 80.

The distances in the above table are computed from *Mauch Chunk*. From *Ashley* to *Mauch Chunk* the distance is 51 miles, and from *upper Lehigh*, 33 miles. From *Hazleton* 24 miles, and from *Penn Haven* 8 miles.

From *Wilkes-Barre* to *Perth Amboy* via the Lehigh Valley Railroad Company, the distance is 161 miles, and from *Mauch Chunk* it amounts to 106 miles.

Freights.

Per ton of 2240 lb.

The following quotations are nominal, in many instances representing rates which have been ruling for some time past.

PORTS.	From Philadelphia.	From Baltimore.	From Georgetown.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Augusta, Me.	....	2 40	....	....
Albany	*85	1 70	...	....
Amesbury, Mass.	....	....	....	....
Bangor, Me.	†2 00	3 00	....	1 30
Bath, Me.	1 60	1 80	3 00	1 30
Baltimore	....	....	....	....
Boston, Mass.	§2 00	1 75	2 50	1 25
Bridgeport, Ct	*80	1 50	2 00	90
Bristol, R. I.	....	....	2 10	1 00
Cambridgeport, Mass.	§1 90	....	2 50	1 25
Derby	....	1 65	....	....
Dighton	....	1 70	....	....
East Cambridge	1 90§	....	2 60	§1 25
Fall River	1 50	1 50	....	1 00
Hackensack	....	....	....	....
Hallowell, Me.	....	....	....	....
Hartford	....	1 65	....	....
Hoboken	†85	1 40	1 75	40
Hudson	....	1 65	....	....
Jersey City	....	1 40	1 75	40
Lynn, Mass	†2 10	.. ..	....	†1 25
Middletown	....	....	....	1 25
Mystic	....	....	....	....
Newark	....	1 50	....	....
New Bedford	1 50	1 60	2 10	90
Newburyport	2 10	2 00	2 65	1 40
New Haven	*80	1 50	190@2	85
New London	1 50	1 50	190@2	1 00
Newport	1 50	1 65	2 10	1 00
New York	85††	1 30	1 80	40
Norfolk, Va.	85	60	60	....
Norwalk	85‡	1 50	....	80
Norwich	1 50‡	1 90	....	1 00
Pawtucket	1 75‡	1 90	2 20	....
Philadelphia	....	1 00	....	....
Portland	1 95	2 00	2 50	1 25
Portsmouth, N. H.	2 05@2 10	1 90	2 75	1 40
Providence	1 50	1 50	2 10	1 00
Petersburg, Va.	....	90	....	....
Portsmouth, Va.	....	....	....	....
Poughkeepsie, N. Y.	....	1 50	....	....
Richmond, Va.	1 00	70	....	....
Rockport	....	....	....	....
Saco	2 50	....	....	....
Sag Harbor	....	....	....	1 00
Salem, Mass.	2 00	2 00	2 60	1 25
Salisbury Pt., Mass.	....	....	....	....
Savannah, Ga.	....	1 50	....	....
Stamford	*80	....	....	90
Stonington	....	....	....	....
Taunton	....	....	....	....
Trenton, N. J.	....	....	....	....
Troy	....	....	....	....
Warren, R. I.	....	....	....	1 00
Washington, D. C.	1 00	....	....	....
Wareham	....	1 75	....	....
Weymouth	2 00	2 00	2 60	....
Wilmington, Del	....	1 00	....	....
Wilmington, N. C.	....	1 50	....	....

* And discharging and towing. † And discharging. ‡ And towing. § 3c. per bridge extra.

From Baltimore and Georgetown charters are very scarce, but few being reported to us. Our quotations from these points to the majority of Sound ports are therefore nominal.

ROBERT CROOKS AND CO.'S METAL REPORT.

LIVERPOOL, Feb. 10, 1876.

PIG IRON.—The warrant market continued quiet till the end of last week, closing price then being 62/ 6d. This week holders have been more anxious to effect sales and price declined on Monday to 61/ 9d., closing at same figure on Tuesday. Yesterday business was done from 61/ 7½d. to 61/ 4½d., closing with buyers at 61/ 3d. and sellers 61/ 6d. Makers' iron is also lower. No. 1 Gartsherrie, 73/ 6d.; Coltness, 76/ 6d.; Summerlee, 71/; Monkland, 63/ f. o. b. Glasgow; Glengarnock, 69/ 6d.; Eglinton, 63/ 6d. f. o. b. Androssan. Shipments for week ending 5th February were 6,328 tons. Stocks on 5th instant, 62,628 tons.

FINISHED IRON.—Complaints are general about the extreme depression of trade in this branch. Mills generally, are going half time. Prices have not, so far, shown any great weakness, present wages preventing this in a great measure. Welsh makers show most disposition to reduce, and to-day, there are quotations for round lots of £7 5/, delivered Liverpool, and even this price might be shaded for a round lot and a favorable specification. Staffordshire bars are £7 17/ 6d., whilst equal quality is procurable at £7 15/. North Country can be got at £7 12/6 delivered.

CANADA PLATES.—Prices continue nominal in the absence of business of any extent. Makers, we think, will have to accept considerable reductions upon their present quotations before there is much buying. £15 we consider to be the value of good cold rolled plates, and £14 10/ for second-class plates.

TIN has not maintained the advance, and is now dull at—English ingots, £88; bars, £84; grain bars, in barrels, £88; granulated, £90; straits, £79 per ton.

TIN PLATES.—Continued depression characterizes this market, and holders press hard to get bids. If this keeps on for a few days we will have lower prices still, and as it is, the reduction during the week cannot be estimated at less than 6d. for good ordinary coke tins, which show particular slackness, and 3d. for other descriptions.

COPPER.—No change; market prices being for good

ordinary brands tough ingots, £87; best selected, £88; sheets, £96.

LEAD.—There is no change, purchases at present rates enabling manufacturers to maintain prices as last advised. The feeling among buyers is that it would be unsafe to wait in the hope of doing better, and considerable quantities are being fixed on the basis of for—English pig, £22 5/; sheet, £23 15/ pipe (for water), £24 5/; pipe (for gas). £24 10/; shot, £25 10.

FREIGHTS.—New York, 12/6; Boston, 7/6; Baltimore, 10/; Philadelphia, 15/; Montreal, 30/; Quebec, 35/; Toronto, 31/; Hamilton, 31/.

JOHN H. AUSTIN & Co., quote as follows:

LONDON, Feb. 9, 1876.

ENGLISH RAILS.

American rails, 50 to 60 lb. per yard, £6 2/6@£6 7/6 per ton f. o. b. Wales; American rails, 50 to 60 lb. per per yard, £6 2/6@£6 7/6 per ton f.o.b. East Coast; Street Rails, £6 10/@£7 10/ per ton f. o. b Tyne and Tees; Steel Rails, £8 10/@£9 10/ per ton f. o. b. England.

IRON MARKET REVIEW.

New York.

FRIDAY EVENING, Feb. 25, 1876.

THE STATISTICAL POSITION OF OUR IRON INDUSTRY.

The Iron and Steel Association in its forthcoming report will place the annual capacity of the furnaces of the United States at 5,439,230 tons divided as follows: Eastern and Middle States, 3,050,950; and the balance of the country, 2,488,280 tons. Earlier in the year Mr. JAMES M. SWANK, the Secretary of the Association, estimated the total production for 1875 at 2,068,696 tons, divided as follows: 1,259,232 tons in the Eastern and Middle States, and 809,464 tons in the balance of the country. As there is not more pig iron being made now than there was last year, it will be seen that the production of the Eastern and Middle States is not equal to one-half of the capacity for producing, while that of the balance of the country is only about one-third. The capacity of our Rolling Mills is 4,189,760 tons, per annum, of which 1,940,300 tons is iron rails, or enough, per annum, to lay say 19,500 miles of ordinary railway. Our capacity for making steel rails is equal to 500,000 tons, and is being fairly employed. This quantity would lay say 5,000 miles of ordinary railroad giving us a total capacity for furnishing 24,500 miles of railroad per annum. If the roads now built were making liberal average purchases for renewals, and new roads were being completed to meet the growth of the country, we could not consume more than about one-half of this quantity. This vast amount of wealth locked up in investments, many of which must be permanently unproductive, naturally exerts, and will continue to exert a depressing effect on business. If a foreign outlet cannot be procured for our surplus production, it will be years before much of this investment capital will become remunerative. The above figures quite plainly indicate that tariffs and subsidies can do but little for the iron industry, and that the earlier it seeks the natural source of relief in a foreign market the earlier must its condition improve.

American Pig.—We are reported sales of Thomas iron aggregating about 600 tons at our quotations. With this exception, we learn of no important business. Prices are nominally unchanged, although there is certainly a growing weakness in the market. We quote No. 1 foundry at $23; No. 2 foundry, $21; and gray forge, $18@$20.

Scotch Pig.—The arrivals continue light, but they are sufficient to meet the very small demand. We are reported no business worthy of note. Quotations are as follows: Coltness, $32@$33; Glengarnock, $30@$31; and Eglinton, $29.50@$30.

Rails.—There is but very little inquiry likely to result in business. We are reported no sales for this week. Quotations are as follows: iron rails, at mills, $42@$45, and steel, $60@$63.

Old Rails.—We are reported a sale of 375 tons at $19 50 here. We quote at $20.

Scrap.—This article in the absence of business is nominally quoted at $30@$31.

Philadelphia Iron Trade.

Weekly report of the Philadelphia Iron Market, furnished by Messrs. JUSTICE COX & Co., Iron Merchants, 333 Walnut street Philadelphia Week ending Feb. 24, 1876.

During the week the sales have been confined to small lots, without any sign of improvement. There is some demand for large lots for future delivery, at $1 off the quoted prices; but as producers think bottom has been reached, and are not inclined to sell for future delivery, they stand at a deadlock. Who will give in first remains to be seen. We report sales of about 1,000 tons, all grades, at the following quotations:—No. 1, $23@$23 50; No. 2, $21@$21 50; gray forge, $20@$22. We hear of a sale of about 1,000 tons prominent Lehigh brand, at $22 at furnace, and think this very probable, as they have been holding firm at the prices.

BARS are also slow of sale, mills and stores complaining alike of the dull trade, as since the reduction of some Eastern mills to $2 35, it has stopped what little trade they had. We quote: $2 35@$2 50 as to brand.

NEW RAILS. There has been some inquiry for light rails this week, but think nothing has come of it as yet. We quote: $42@$45 at mill.

OLD RAILS are dull of sale at $21@$24.

SCRAP is in light demand, at from $25@$28.

Boston. Feb. 19, 1876.

Since we last wrote you there has been some sales of pig iron both of Scotch and American, and we are inclined to the opinion that a rather better feeling prevails, as inquiries for forward delivery are made.

We quote a small local trade at the regular market prices, one lot of a few hundred tons hypothecated iron has been sold at something less than it would cost to land it here at this season of the year. We hear of an order for about ten tons bars, being placed on private terms, understood, however, to be at better prices than some of our jobbers obtain from store.

PIG is still very slow, but holders continue talking more confidently, and at the same time exercising extreme caution in their credit lines. No 1 quotes at $28@29; No. 2, $26; and gray forge, $19@19.50.

BAR is easy at $50 as a jobbing price, with a good line of trade continuing to come in from even the most extreme points. The receipts are light. The interest of the week is in the puddlers' new wages scale which is to be decided upon the coming week. The proposition is to make the rate $4.50 instead of $5 a ton.

STEEL is jobbing in a steady way for tool and machinery. The carriage makers as yet doing only little.

We quote American tool, 14@15c.; American machinery, 9@9½c.; Bessemer tires, 6¾@7¼c.; SWEEP'S excelsior tire, 7½c.; English tool, 17@18c., gold.

COPPER is quiet at 22½c. holders not showing any anxiety nor buyers any interest. The market is full of rumors to influence an upward move, but none are traceable to authentic sources.

For manufacturers we quote new sheathing 30c.; for bolts and braziers, 31c.; yellow metal bolts, 20@29c.

LEAD is selling slowly, with prices fairly steady. Zinc is stronger, asking $9.45.

We quote pig 6c. for domestic and 6½@6½c. gold foreign; sheet and pipe lead, 9c., currency; tin-lined pipe, 16½c.; bar lead, 9c., less usual trade or 10 per cent. discount.

ANTIMONY is scarce, and 14½c. is now asked out of first hands.

SPELTER is steady, the combination price for February being understood as likely to stand for the following month, viz., $7.75, currency.

TIN is in large receipts, quoting lower at Singapore, Thursday's cable quoting $2.20. Lots to arrive are nominally 18½c. and spot lots 18½c. Plates are stupid and weak.

We quote Straits 18c.; Banca, 22½c.; Refined English 18c., gold. We quote plates charcoal I. C., $7.50; coke, $6.75@7; and terne at $6.30@6.75, gold.—*Commercial Bulletin.*

Baltimore. Feb 23, 1876.

The pig iron market continues dull and light—at about quotations:

Specially reported by Messrs. R. C. HOFFMAN & Co.

Baltimore Charcoal	$32@35	Anthracite No. 3	$20@21
Virginia Charcoal	28@34	Mottled and White	17@19
Anthracite No. 1	23@24	Charcoal C B.Blooms,70@72	50
" No. 2	22@23	Refined Blooms	60@62 50

Chattanooga, Tenn. Feb. 21, 1876.

Specially reported by J. F. JAMES, dealer in pig iron, etc., 233 Market Street.

The market is dull and inactive. Inquiries from the West for cold short metal are numerous, and some large sales are looked for. I quote on 4 mos. time.

Tenn. Ala. and Ga. Charcoal,	No. 1 foundry	$23@$24
" " " "	No. 2 foundry	21@ 22
" " " "	gray forge	20@ 21
" and Georgia coke,	No. 1 foundry	19@ 20
" " " "	No 2 foundry	18@ 19
" " " "	gray forge	17@ 18
White and Mottled		15@ —
Tennessee cold-blast car wheel		27@ 28
Alabama " "		26@ 27

Chicago. Feb. 22, 1876.

Specially reported by Messrs. ROGERS & Co., dealers in

The following are the present quotation for pig metal in our market:

Scotch and American pig iron.

No. 1 Coltness	$38 00@ ....
No. 1 Gartsherrie	38 00@ ....
No. 1 Summerlee	37 00@ ....
No. 1 Glengarnock	36 00@ ....
No. 1 Eglinton	35 00@ ....
Warner's "American Scotch"	30 00@ ....
Massilon No. 1 Foundry	29 00@ ....
No. 1 Grand Tower Mo. ores (Bituminous)	29 00@ ....
No. 2, " " "	28 00@ ....
No. 1 Mill	25 00@ ....
No. 1 Foundry, Ohio	28 00@ ....
No. 2	27 00@ ....
No. 1 Hanging Rock (charcoal)	28 00@ ....
No. 2 " "	26 00@ ....
Union "A" 1 (Anthracite)	28 00@ ....
Union "B" 1 (Anthracite)	26 00@ ....
No. 1 Lake Superior (charcoal)	28 00@ ....
No. 2 Lake Superior "	26 00@ ....
No. 3 Lake Superior "	26 00@ ....
No. 4 Lake Superior "	28 00@ ....
Bessemer Steel Rails	65 00@ ....
New Iron Rails	45 00@ ....
Old Rails	28 00@ ....

Cincinnati. Feb 22, 1876.

Specially reported by Messrs. TRABER & AUBERY, commission merchants for the sale of pig iron, blooms, ore, etc.

Our Pig Iron market has shown some signs of activity during the past week, but prices remain unchanged. We quote:

CHARCOAL.

Hanging Rock, No. 1	Foundry	$25 00@ ....—4 mos
" No 2,	"	23 00@24 00—4 mos
"	Mill	22 00@ ... —4 mos
Tennessee No. 1,	Foundry	23 00@24 00—4 mos
Tennessee, No. 2,	"	22 00@23 00—4 mos
"	Mill	21 00@22 00—4 mos
Missouri, No. 1,	Foundry	@ ....—4 mos

STONE COAL.

Ohio, No. 1,	Foundry	22 00@23 00—4 mos
" No. 2,	"	21 00@22 00—4 mos
Ohio Mill		20 00@21 00—4 mos
Missouri, No. 1	Foundry	27 00@ ....—4 mos
" No. 2,	"	26 00@ ....—4 mos
"	Mill	25 00@ ....—4 mos

CAR-WHEELS.

Hanging Rock, C. B		40 00@50 00—4 mos
Tennessee "		30 00@33 00—4 mos
Missouri "		33 00@35 00—4 mos
Alabama "		30 00@33 00—4 mos

BLOOMS.

Charcoal	60 00@ 75 00—cash

SCRAP IRON.

Cast	50c.@ 65—cash
Wrought	90@1 10—cash

Cleveland, Ohio. Feb. 22, 1876.

Messrs. C. E. BINGHAM & Co., quote as follows:

Per gross ton, on four month's time. Subject to change i market. Discount for cash 4 per cent.

FOUNDRY IRON.

No. 1, Lake Superior Charcoal	28 00@....
No. 2, "	28 00@....
No. 1 Anthracite	26 00@....
No 2, "	24 00@....
No. 1, Bituminous foundry	23 00@ ...
No. 2, "	24 00@....
American Scotch, No. 1, Cherry Valley	29 50@....
" " B—1, " "	27 50@....
" " No. 2, " "	26 00@....
No. 1, Massilon	25 50@....
B—1, "	26 00@....
No. 2, "	23 00@ ...

CAR WHEEL AND MALLEABLE IRON.

No. 3 Lake Superior Charcoal	27 50@....
No. 4 " "	28 00@....
Nos 5 and 6 " "	28 00@....

BESSEMER IRON.

Nos. 1 and 2 Lake Superior Charcoal	28 00@....

FORGE IRON.

No. 1, Gray	23 00@....
White and Mottled	22 00@...

Indianapolis, Ind. Feb 22, 1876.

Specially reported by NELSON KINGMAN, broker and deale in pig iron, etc.

Prices remain the same.

Trade very dull at prices named below.

New Rails at mill	....$48 00@50 00
Old Rails	24 00@26 00
Hanging Rock Charcoal Pig No. 1 foundry	28 00@29 00—4 mos
" " " " 2 "	26 00@28 00—4 mos
" " " Mill	24 00@26 00—4 mos
Car Wheel C. B	40 00, nominal.

STONE COAL.

Indiana No. 1	Foundry pig Red Short	24 00@26 00—4 mos
" 2	" "	22 00@24 00—4 mos
" 1	Forge "	....@ ....—4 mos
" 2	" "	....@ ....—4 mos
Ohio No. 1	Foundry pig Cold Short	25 00@26 00—4 mos
" 2	"	24 00@25 00—4 mos
"	Mill	23 00@24 00—4 mos
"	No. 1 Foundry, Neutral	26 00@28 00—4 mos
"	No. 2 " "	25 00@27 00—4 mos
Merchant Bar		2½c.—3 mos
1st quality C. H. No. 1	Boiler Plates, per lb	5 c.—3 mos
1st "	Com. Sheet for No. 24, W.G. "	4 c.—5 mos
1st "	Charcoal Sheet " " "	5½c.—3 mos
Best Bloom Galvanized Sheet, discount 20 per cent		—cash.
2d quality	" " " 30 "	—cash.

f. o. b. in Indianapolis.

Louisville. Feb. 22, 1876.

Specially reported by Messrs. GEORGE H. HULL & Co.

The market is dull, but without change in prices.

The usual time, four mos., is allowed on the quotations below:

HOT BLAST—CHARCOAL.

No. 1 foundry, from Hanging Rock Ores	$25 00@26 00
No. 2 " " "	23 00@24 00
No. 1, Mill, from " "	—@—
No. 1. foundry, from Alabama, Georgia and Tennessee ores	23 00@24 00
No. 2, foundry, from Ala., Geor'a and Tenn. ores	22 00@23 00
No. 1, Mill, from " " " "	21 00@22 00

HOT BLAST—STONE COAL AND COKE.

No. 1, foundry, from Hanging Rock ores	23 00@24 00
No. 2, " " " "	22 00@23 00
No. 1, Mill, " " " "	21 00@22 00
No. 1, foundry, from Ala. Ga. and Tenn. ores	23 00@24 00
No. 2, " " " "	22 00@23 00
No. 1, Mill, " " " "	21 00@22 00
No. 1 foundry, from Missouri ores	24 00@25 00
No. 2 foundry, from Missouri ores	24 00@25 00
No. 1 Mill, from Missouri ores	25 00@26 00

COLD BLAST—CHARCOAL.

Car Wheel from Hanging Rock ores	35 00@40 00
" " Tennessee "	28 00@30 00
" " Alabama and Georgia ores	28 00@38 00
" " Kentucky ores	28 00@40 00

Milwaukee. Feb. 22, 1876.

The pig iron market remains much the same. Prices are as follows:

per ton of 2,240 lb.

Frankfort L. S. Charcoal,	No. 1	$29 00
" " "	No. 2 & 3	28 00
" " "	No. 4 & 5	31 00
" " "	No. 6	33 00
Mil. Anthracite L. S.,	No. 1	27 00
" " "	No. 2	26 00
Wisconsin Iron,	No. 1	25 00
Mahoning Valley Bit's	No. 1	30 00
" " "	No. 2	28 00

Pittsburgh, Pa. Feb. 22, 1876.

Specially reported by A. H. CHILDS, Esq.

The market is quiet and unchanged. The agreement made in December between manufacturers and puddlers fixing the rate of wages for sixty days, expired recently, and meetings held since have not resulted in a settlement of the vexed question.

In the meantime a feeling of uncertainty rather aggravates the existing dulness. Quotations are:

No 1. foundry	$25 00@26 00—4 mos
" 2. "	23 50@24 00—4 mos
Gray forge	22 00@22 50—4 mos
White and mottled	20 00@21 00—4 mos
Warm blast charcoal	23 00@28 00—4 mos
Cold blast " Western	40 00@50 00—4 mos

Richmond, Va. Feb. 21, 1876.

Reported by ASA SNYDER, Esq.

Receipts of charcoal pig iron continue very light. Prices are firm at quotations:

Virginia Cold Blast Charcoal Pig Iron					$27 to $33
" Warm " " " "					24 to 28
" " " Coke " "				1 X	23 to 24
" " " " " "				2 X	21 to 22
" " " " " "				3	20 to 21
" Anthracite	1 X				24 to 25
" "	2 X				22 to 23
" "	3				21 to 22

San Francisco, Cal.

From the *Commercial Herald*, Feb. 10, 1876.

We remark an increased demand for tin plate, chiefly for shipment to Oregon, for the use of salmon packers with free sales of 10x14 coke at $8 50, and $9 50 for 14x20; charcoal do. is held at about $1 per box higher. Pig iron is in excessive stock, and prices nominal with a light demand.

St. Louis. Feb. 22, 1876.

Specially reported by Messrs. SPOONER & COLLINS, Commission Agents for all kinds of Iron.

Our market remains about as last reported. The demand both in the city and country is a little on the increase, though prices continue to rule very low, and no immediate prospect of their changing.

We quote on four months' time:

No. Stone Coal No. 1 Fy.	$25@26	Massillon Iron, A No. 1	.31@32
" " " 2 "	24@25	" " B "	1.29@30
" " Gray Mill,	24@25	" " "	2.27@28
" Charcoal No. 1, Fdy.	24@25	Cold Bl. Car Wheel, Mo.	35@40
" " " 2, "	23@24	" " " Tenn.	33@35
" " Gray Mill,	23@24	" " " Ala.	33@35
Tenn. " No. 1, Fdy.	24@25	" " " H. R.	32@33
" " " 2, "	23@24	Mo. Charcoal Blooms..	60@70
" " Gray Mill,	23@24	" Scrap "	55@60
Va. Coke, No. 1, Fdy.	25@26	" " hammered Billets	75@80
" " " 2, "	24@25	Assorted Bar Iron	2 35, 9 days
" "Gray Mill,	23½@24¾	No. 1 Wrought Scrap	1 10 ch.
H. R. Char. No. 1, Fdy.	26@27	Heavy cast "	.95 "
" " " 2, "	24@25	Light " "	.60 "
" " Gray Mill,	24@25		

Montreal. Feb. 15, 1876.

We quote pig iron Eglinton and Clyde $21@21.50; Carnbroe $21 50@22; American $24,@26.; Summerlie and Calder $22.00@23.00; Langloan and Gartsherrie $22.00@23.00; Coltness $22.50@23.50; Hematite $30.00@31.00. Bar, per 100 lb., Scotch and Staffordshire, $2.25@2.30; best do., $2.50@2.60. Swedes and Norway $5.00@5.50; Lowmoor and Bowling, $6.50@7.00.—*Monetary Times.*

METALS.

NEW YORK, FRIDAY EVENING, Feb. 25, 1876.

There is but very little business doing in metals. The only characteristics of the market are a downward inclination in tin and a "corner" in lead.

Gold Coin.—During the week past gold has ranged from 113⅝@114⅛, and closed at 114.

Bullion.—The decline in fine silver bar is uninterrupted; our quotations to-day, for this market, being 1c. to 1⅛c. lower than a week ago; San Francisco, 2 per cent. lower; London, ¼d. lower. We quote as follows: This city, $1.16⅛@1.17⅛, gold, per oz.; San Francisco, to-day, 11 per cent., discount; and London, to-day, 53⅛d. Fine gold bar continues unchanged at ¼ per cent. premium in this city; par, ($20.67, gold, per oz.) in San Francisco; and 84/ 7¼d. in London.

Copper.—We are reported sales aggregating about 150,000 lb., at 22⅜c.@22¾c., which are the asking prices of to-day. An advance in the price of manufactured copper has given a little better feeling, but it has had no effect on prices. Chili Bars, in London, are quoted at £79, which is a fraction off of last week.

Tin.—This article is very inactive, and prices here are following downward with those of London. Straits, in all quantities, is quoted at 18c., gold; L. & F., 17¼c.; and Banca, 22¼c. Straits, in London, was quoted at £76 10/, yesterday, while at Singapore, on the previous day, the quotation was $22 per picul.

Tin Plates.—Under a limited jobbing demand tin plates are quoted as follows—prices in gold per box: Charcoal tins, $7 75 and ternes, $7 37½@$7 50; coke tins, $6 62½@$6 75, and ternes, $6 37½@$6 50.

Lead.—The business doing in this article is very limited, Buvers are awaiting the action of Government. If it advances its price to 6½c., gold, the balance of the sellers will follow. In fact some are asking that price now, while others quote at 6¾c. St. Louis quotes ordinary lead at 6¼@6½c., currency, and soft at 7@7⅛c., currency, freights here 58c. Foreign is nominally quoted at 7c., gold.

Spelter and Zinc.—Domestic spelter is very quiet. The Combination price is still 6 75c., currency, while outside lots are offering at 6.50@6.60c. A sale of 25 tons of Foreign is reported at 7¼c. gold. The balance of the stock in this market is held at 7½c., gold. Sheet zinc is quiet at 8¾@9c.

Antimony.—There has been a fair trade doing in this article which is quoted at 14½@14¾c.

Quicksilver.—Stocks in San Francisco are reported as temporarily reduced, owing to the bad condition of the roads. The quotations in that market is 60@62½c., gold, per pound, and 67c. in this city. The London quotation is £10 10/.

FINANCIAL.

New York Stocks.

FRIDAY, Feb. 25, 1876.

The New York stock market has presented no feature of special interest during the past week, and with the exception of an advance of 1¼ in the shares of the Delaware, Lackawanna & Western RR., we note a general decline of the list. The stock of the Consolidated Coal Company has declined $1 50 per share during the week, closing at 46, with sales amounting to some 1,600 shares. Maryland Coal Company's stock has ruled firm with sales aggregating 900 shares.

The bonds of the Chesapeake & Ohio RR. Company have made a notable advance, the 1st mortgages with coupons attached closing at 36, and those with coupons detached closing at 32, an advance of over 4 per cent. compared with our last quotations of these bonds. The general bond market closed dull and lower.

Company Meetings.—The Mesnard Copper Mining Company will hold its annual meeting in Boston, on the 28th of March.

The Osceola Copper Mining Company will hold its annual meeting in Boston, on March 9th.

A special meeting of the St. Louis Copper Company, will be held in Boston, on the 21st of March.

The annual meeting of the Isle Royale Mining Company, will be held in New York, on the 8th of March.

The annual meeting of the Minnesota Mining Company, will be held in New York, on the 15th of March.

The annual meeting of the stockholders of the St. Louis & Iron Mountain RR. Company, will be held in St. Louis, on the 7th of March.

The annual meeting of the stockholders of the Jefferson Iron Company, will be held in New York, on the 7th of March.

Boston, Hoosac Tunnel, Pittston, and Western Railway.—In our issue of the 12th inst. we published an abstract of the opinion of the committee appointed to consider the feasibility of building the above road. A recent issue of the Boston *Post* says, with regard to the subject:

"The distinct purpose is to open a new and nearer route from the Pennsylvania coal fields to the East. The total amount of coal consumed in Northern and Eastern New England being estimated at 3,000,000 tons yearly, the report asserts that fully one-half of it would pass over this road, and at $2 per ton would secure an annual freight business worth $3,000,000. If 66 per cent. be allowed for running expenses, repairs, etc., $1,000,000 will be left as surplus earnings out of which to make dividends on a capital stock estimated to cost $3,289,000. The additional local traffic is to be reckoned in, which is set down as considerable, and sure to increase continually. At least $1,000,000 are promised with an approach to positiveness by the great Pennsylvania coal interest, and the consumers of coal are expected to manifest an equal desire for the road's construction, on the reiterated assurances that coal can be delivered over this road cheaper than over any other road in existence, as the proposed route will be sixteen miles shorter, it is claimed, than the road now in operation between Albany and Carbondale, Pa., that being 178 miles while the new one will be but 162 miles long; and it is also claimed that between Boston and Pittston the difference is near y sixty miles in favor of the Tunnel route as compared with the Boston and Albany.

From the coal regions northeasterly to the Hoosac Tunnel no ascending grade need be encountered that is more than 40 feet to the mile, while the ascending grades westward would not be more than 65 feet per mile, and for more than 60 miles along the eastern or western branch of the Delaware the average grade would not be over fifteen feet to the mile. Such a line is claimed to be not inferior in this respect to the New York Central and the Hudson River Roads. If these favorable statements from an authorized committee of investigators are to be fully accepted, it is difficult to deny that such a project deserves attention.

San Diego and Utah Southern Railroad Company.—Articles of incorporation of the above company have been filed in the office of the Secretary of State at Sacramento, California, and a certificate of incorporation has been issued to the same. The capital stock of the company is $9,000,000 in 90,000 shares of $100 each; $350,000 has been subscribed, and $35,000 paid in.

Quotations and Sales of Stocks and Bonds,

For the week ending Feb. 25, 1876.

STOCKS.

	Highest	Lowest	Closing	Shares sold.
Pennsylvania Coal Co	—	—	276	†100
Consolidation Coal Co	49	46	46	1035
Spring Mt. Coal Co	—	—	6¾	37
American Coal Co	—	—	*37	—
Maryland Coal Co	—	—	18	900
Del., Lack., and West. RR. Co	120	118	119⅜	3285
New Jersey Central RR. Co	109¼	106¼	107¾	2641
Delaware and Hudson Canal Co	122½	121½	121¾	493
Quicksilver Mining Co. pref'd	24¾	22	22	600
" " " Common	18¼	18	18½	1450
Mariposa Land & Min. Co, various	10	8¼	8¼	510
St. Louis & Iron Mountain RR	25¼	24¼	25	600
Lehigh & Wilkes-Barre Coal Co	—	—	40	—
Total Shares sold				12251
Sales for the week previous				19171
Decrease				6920

* This is a nominal quotation. † This was an auction sale.

BONDS.

	Sales.	Price
Ches & O. R. R. 6s, 1st. cou. on	8,000	32 @ 36
" " " ex coupon	—	— @ 32
Central RR. of N. J. 1st Mtg. N.	—	@113½
" " " 1st Cons.	21.000	111 @111¼
" " " Convt.	13,000	109 @110¼
Del. and H. Canal, 1st Mtg. 94'	—	— @—
" " 78, '77	—	— @102
" " Reg. '94	—	— @113
Del., Lack. & W. R. R., 7s, conv.	—	— @—
" " " " 2d Mtg.	1,000	— @116
St. Louis & Iron Mount'n 1st Mtg	6,000	98⅛@
St. Louis & Iron M'tn, 2d Mtg.	—	— @ 71½
Lehigh & Wilkes-Barre Cons.	14,000	98⅛@ 98¼
Total Sales	$63,000	

Closing quotations, in the absence of sales, represent the latest prices bid.

Philadelphia Stocks.

PHILADELPHIA, Feb 26, 1876.

The feature of the week in this market has been the activity in Pennsylvania Railroad stock, the transactions for the five days (there being no Board on the 22d inst.) aggregating the large amount of 111,650 shares. The stock advanced to 58⅞ on the 23rd inst., at which figure several thousand shares changed hands. It subsequently declined to 57¾, which was the closing price. This is an advance of $1 50 per share on the highest price recorded in our last. The annual meeting of the stockholders of this company will be held on the 14th of March.

Lehigh Navigation Stock has been fairly active during the week at a fractional decline. This company has declared a dividend of $1 per share, payable on the 3rd of March.

Lehigh Valley Railroad is quiet at a slight decline. It is rumored that this company proposes to build a new railway from Elmira to Geneva, *via* Watkins, along the eastern shore of Seneca Lake. Surveys for this purpose being now in progress.

Quotations and Sales of Stocks and Bonds,

For the week ending Feb. 25, 1876.

STOCKS.

	Highest	Lowest	Closing	Shr's
Lehigh Valley RR. Co	63¾	63	63⅞	343
Pennsylvania RR.	58⅞	55⅞	57¾	111650
Reading RR.	52	51¼	51⅞	13950
Lehigh Coal and Nav. Co	51⅝	50	†50	5307
Penn. Canal	—	—	9	—
Buck Mountain Coal Co.	—	—	30	—
Fulton Coal Co	—	—	3½	—
Locust Mountain Coal Co	—	—	—	—
Westmoreland Coal Co	—	—	8¼	—
St. Nicholas Coal Co	—	—	1	—
Cambria Iron Co	—	—	17	—
Crane Iron Co	—	—	46	—
Emaus Iron Co	—	—	—	—
Pennsylvania Salt Manufact. Co	79	78¾	78¾	60
Total shares sold				131,310
Sales for the week previous				96,237
Increase				35,073

† Ex Dividend.

BONDS.

	Sales.	Price
H. and B. T. RR. 1st mortgage, 7s	—	— @109
" " " 2d " "	—	— @103½
" " " 3d " cons	17,000	— @ 61
Lehigh Valley RR. Con. mtg. 6s, Reg	37,000	100⅛@100⅝
" " 7s, 1910	2,000	114 @114¾
" " 6s cou	—	@105
Pennsylvania RR., 1st mtge. 6s	1 000	— @104½
" gen. " cou. 1910	—	— @ —
" " gen. " 6s, reg	—	— @ —
" " Cons. M. 6s cou	5,000	— @ 97¼
Phil. & Reading RR. 7s 33	1,000	— @113
" " G. M. 7s, reg. & cou.	21,000	110½@111½
" " " " Deb. 6s	1,000	— @ 82½
" " new convertible 7s	4,200	105⅛@106
Phil. & Reading C. & I. Co. Deb. 7s	10,000	85½@ 86
" " Various tracts	2,000	88⅛@ 89
" " Mtge. 7s	—	— @ —
Lehigh Coal & Nav. Co., 6s '84	2,900	103⅛@104
" " " RR., '97	1,400	— @104
" " " Con m. 6s	—	— @103½
" " " Convt. gold, '97	10,020	105⅛@106⅛
Penn. Canal, 6s	2,000	— @ 73¼
Penn. and N. Y. Canal, 7s	—	— @100
Ches. and Del. Canal, 6s	—	— @ 86
Susquehanna Coal Co. 7s	—	— @ 85
Buck. Mount Coal Co. 6s	—	— @ 97½
Penn. Gas Coal Co. 6s	—	— @100¼
Total amount of sales	$117,500	

Closing quotations, in the absence of sales, represent the latest prices bid.

Gold and Silver Stocks.

NEW YORK Feb. 25, 1876.

With but few exceptions, the Mining Share List has advanced, Consolidated Virginia being $30, and California $9 per share, respectively, in advance of our quotations of the 17th inst.

The ore product of the Consolidated Virginia Mine amounts to about 5,300 tons per week. This company placed over $1,000,000 to their surplus account from their January earnings, after paying $1,080,000 as the monthly dividend.

Belcher is steady. The bullion product of this mine for the month of January amounted to $325,500. The ore product exceeds the capacity of the mills. A rich strike is reported between the 1,200 and 1,300-foot level of this mine.

Savage.—This company has levied an assessment of $1 per share. We note a continued decline in the stock of this company, our present quotation being $17 per share, a decline of $7, from the prices quoted some three weeks ago. The *Commercial Herald* of recent date says:

"Savage has been the leading feature of the week, sales having been made to the extent of 23,500 shares within the range of $21.75@$16.50. The Superintendent reports that a large body of water had broken into the 2,200 north drift, and had continued to rise until it was then 100 feet above the 1,900-foot level. The water was gaining on them at the rate of 20 feet per day, the heat of the water being 131 degrees Fahrenheit. (?)' The water continued to rise until the 2,200 foot level of the Hale and Norcross, which was also flooded, and all work stopped in both mines. The pumps are running up to their full capacity, hoisting about 20,000 gallons of water per hour. Large tanks are also being placed at work in the incline, and every effort is being made to reduce the flow of water as rapidly as possible. The Savage has paid $4,000,000 in dividends in the past.

Assessments, with dates when delinquent.—HALE & NORCROSS, $5, March 14; Caledonia, $3, March 4th; OVERMAN, $3, March 15th; Imperial, $1, March 21st. The above assessments are probably levied for the purpose of putting in pumping machinery, etc., as large bodies of water have come in the lower levels of the Overman, Savage, and Hale & Norcross, and the latest reports state that the water was gaining on them, the extraction of ore from the lower levels of these mines is consequently abandoned for the time.

MINING NOTES

From our exchanges we take the following:

The Sutro Tunnel.—This work had progressed 12,179 feet for the week ending Feb. 8th.

Oregon Gold Lead.—It is stated that a gold lead, thought to be the richest ever struck in Southern Oregon, has been discovered in Roque River, in Josephine County, about fifty miles below Jacksonville, and samples assay about $500 per ton.

Union Consolidated, Virginia City. A "strike" of silver ore, which is considered of a good deal of importance, was made in this mine recently. The ore found is black sulphuret of silver, and it presents characteristics which show that it comes from no small body, and it is believed that either a new bonanza or a large pocket of ore has been found.

North Consolidated Virginia Mining Company.—The President of this company presents the following report to the stockholders: "The shaft has attained a depth of 560 feet. No cross-cut has been made and none will until the shaft strikes ore. The last twenty-five feet passed through show that the surface water line has been passed, and that for some time they will be in dry ground, and thereby be able to sink the shaft at the rate of 60 to 80 feet per month. The Superintendent in his report says: "There is no doubt but that we are in the same ore channel as the Consolidated Virginia, California and Ophir, and the east drift from the last mine establishes the fact that we will reach ore at 1,000 to 1,100 feet." The total receipts from all sources were $68,051.75, and the expenditures, including cost of sinking shaft, machinery, tools, erecting buildings, etc., were $48,817.51. The assets are computed at $37,841.18. The cost of sinking and timbering the shaft was alone $30,210.57.

The Gilpin Gold Mine, Southern California, has developed a quartz vein sixteen feet wide, carrying gold and ruby silver assaying from $400 to $3,000 a ton. A dispute has arisen relative to the title.

Southern California Mines.—The gold mines in this part of the State are now receiving attention from San Francisco capitalists, especially the Mother Lode, which runs north and south through several counties, is traceable for some eighty miles, and is already opened and worked by independent companies at different points. Its product has reached several hundred millions of dollars. FLOOD & O'BRIEN are sinking at the French Mine a twelve hundred-foot shaft, and a new tunnel has been projected to start from a point on the south bank of the Mercer River, running thence southwesterly until it strikes the Mother Lode near the Pine Tree Mine, Mariposa county. Its length will be three thousand five hundred feet, and its cost at $40 in gold per foot $140,000; in addition to this a large amount of machinery will be needed, which will cost as much more. The surveys have been completed, and the work will begin in the spring

Dividends.—The Belcher has paid out in dividends the magnificent sum of $15,085,200, equal to $136 per share. Its total assessments only aggregate $660,400, or $6.35 per share, and it has not levied an assessment since April, 1871. Crown Point up to this month has paid out a total of $11,588,000 in dividends, or $115 per share, with $673,370 in assessments; and Consolidated Virginia has paid up to this month $14,040,000 in dividends or $130 per share, with $411,200 in assessments. By comparing these figures it will be seen that the Belcher has paid out the greatest aggregate sum and the greatest sum per share in dividends of any mine on the famous Comstock. Although it paid only $312,000 as a dividend in 1875 it levied no assessments, and work has been vigorously prosecuted all the time.

QUOTATIONS:

	No. of shares.	Feb. 17.	Feb 24.
Sierra Nevada	100,000	$20	22
Union Consolidated	100,000	10	11
Mexican	108,000	19	26
Ophir	108,000	59	66
California	540,000	82	91
Consolidated Virginia	108,000	413	443
Best & Belcher	100,800	60	64
Gould & Curry	108,000	21	21
Savage	112,000	20	17
Hale and Norcross	16,000	51	52
Chollar Potosi	28,000	90	90
Alpha Consolidated	30,000	26	27
Imperial	100,000	8	8
Yellow Jacket	24,000	102	108
Kentuck	30,000	16	16
Crown Point	100,000	25	25
Belcher	104,000	37	37
Overman	38,400	66	68
Caledonia	20,000	50	53
Justice	105,000	26	25
Raymond & Ely	30,000	22	21
Meadow Valley	60,000	3	3
Eureka Consolidated	50,000	16	16
Eureka G. V.	20,000	3	3
Silver Hill	54,000	12	11
Julia	110,000	15	15

Gas Stocks.

NEW YORK, Feb. 25, 1876.

New York Gas Stocks are comparatively neglected, with a decided downward tendency in quotations. A small lot of the Manhattan Company's stock was sold at auction on the 23d inst. at $270 per share, which is a decline of $25 per share from last week's price. All of the gas companies of this city excepting the Harlem Gas Co., (their price being $3 per 1000 feet), announce that they will reduce the price of gas from $2.75 to $2.50 per 1000 cubic feet, said reduction to go into effect on the 1st of March. This reduction, which is an important concession to the demands of the times is thought by many insufficient, and that a good illuminating gas can be furnished at $2 per 1000 feet, and still yield a reasonable profit to the companies. Consumers have become exasperated and are growing unreasonable.

Brooklyn stocks are dull and in many instances lower.

We note recent sales of the San Francisco Gas Co., aggregating 520 shares, at from 97 to 98½ also 347 shares of the Peoples' Gas Co., of Baltimore, at from 24⅞ to 25.

Registration of Meters.—Considerable prejudice has been raised against the Brooklyn Gas Companies, on account of the excessive registration of many of the meters. The State Gas Inspector has tested a number of meters in different places, and found that they registered from 6 to 10 per cent. in favor of the gas companies; in many instances the companies have returned the over-charge paid by the consumers; undoubtedly the cases referred to are exceptional instances, and not as some of the daily papers would have us believe "that it is a conspiracy on the part of the gas companies to defraud the public," on the contrary the tendency of gas meters, is to clog up and not register fast enough.

Gas Tax Decision.—A decision interesting to gas companies has recently been made by the Solicitor of the Internal Revenue. The tax upon gas, before it was repealed in 1873, was collected in some cities upon the quantity of gas sold, and in other cities upon the amount of gas manufactured, according to the register at the works. This discrepancy was caused by a difference of interpretation by collectors of revenue, and, for some reason, it appears not to have been called to the attention of the department. In Washington, in Baltimore, and some other cities the tax was collected upon the quantity of gas manufactured. In Cincinnati, St. Louis, and Indianapolis, a tax was levied upon the amount of gas actually sold. It appears that there is a wide difference between the returns of gas sold and the register of the actual production at the works. It is now decided by the Solicitor that the law required the tax to be paid upon the actual production. This decision will require some of the companies who have paid upon the sales to pay quite large sums for back taxes into the Treasury. It is said that some of the companies owe the Government as much as seventy-five or one hundred thousand dollars.

The following list of Companies in New York and vicinity are corrected weekly by GEORGE H PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad st., N. Y.

Quotations "bid" and "asked" of New York City and Vicinity Gas Companies are on the $100 of stock and not on one share.

Companies in New York and Vicinity.	Cap. Stk.	Par.	last Divid.	When Paid.	Bid.	Askd.
			pr.c			
Mutual, N. Y.	$5,000,000	$ 100	2½	Oct. '75	—	110½
" " Bonds	900,00	1,000	$3½	Aug. "	105	
NewYork, "	4,000,000		5	Jan. '76	148	150
Metropol. "	2,500,000	100	5	Sept. '75	160	161
" " Certf.	1,000,000	..	3½	"	105	106
" " Bonds	500,000	1,000	3½	July, "	105	
Harlem "	1.850,000	50	4	Feb. '76	—	134
‖Manhattan "	4,000,000	50	10	Jan. "	270	
Brooklyn, B'klyn	2,000,000	25	5	Nov. '75	195	200
Nassau "	1,000,000	20	4	July, "	100	105
" " Certf.	700,000	1,000	3½	Nov. "	95	98
People's "	1,000,000	10	3½	Jan. '76	100	108
" " Certf.	300,000	1,000	3½	July, '75	85	86
" " Bds	325,000	....	3½	Aug. "		95
Metropol. "	1,000,000	10	3½	May, "	70	75
Wmsburgh "	1,000,000	50	5	July, "	—	142½
" " Certf.	1,000,000	....	3½	July, "	97	100
Citizen's "	1,200,000	20	2½	Jan. '76	100	108
" " Certf.	320,000	1,000	3½	Oct. '75	95	100
J. C. N.J.	386,000	20	5	July, "	160	170
Centl. Westch. N.Y.	466,000	50	4	July, "	100	105

‡ Gold.

Companies out of Town.*	Cap. Stk.	Par	Bid	Askd.
People's " " of J. C.			125	135
Citizen's G. L. Co., Newark, N.J.	1,000,000	50	75	80
Hempstead" " L. I., N.Y.	40,000	100		100
Jamaica, " " "	25 0.0	100		100
Richmond Co., S. I. "	300,000		100	105
Citizens', Rochester, "		100	60	68
Rochester Gas Co., "		100	50	
People's G. L. Co. Albany,"	1,000,000	100	31	40
§Mutual " Buffalo "	750,000	100	45	55
Mutual " Detroit. Mich.		50	18	
TroyG. L. Co., Troy, N. Y.			108	
Brockport, N. Y., G. L. Co.	25,000	100		80
†Baltimore G. L. Co., Balt.. Md	2,000,000	100	175	180
People's G. L. Co., Balt., Md	2,000,000	25	24⅞	25
Hannibal G. L. Co., Hanni., Mo.	100,000	100	95	100
La Clede, Mo			110¾	125
Lewiston G. L. Co., Lewis., Me	400,000	100	33	
Chicago G. L. Co., Chicago, Ill.	2,000,000	100	140	
Jacksonville, Ill.	120,000	100	82	
‡Lima. Ohio	60 000	100	10	
Derby G. L. Co., Derby, Conn..	160,000	100		80
Woonskt G. L. Co. Woonskt, R.I.	150,000	100	100	
Fort Wayne G. L. Co, F. W., Ind		100	90	100
North. LibertiesG. L. Co. Phila.		25	29	
Wilkes-Barre G. L. Co W. B. Pa.		50	70	
Washington G. L. Co., Phila.			42	43
Pottsville, Pa., Gas Co		50	40½	
Portland G. L. Co. Portland, Me	350,000	50	72	75
Hartford G. L. Co., Hartford, Ct	700,000	25	44½	
Boston G. L. Co., Boston, Mass.	2,500,000	500	780	785
Chelsea G. L. Co. Chelsea, "	300,000		139	
Cambridge G. L. Co., Cam., "	700,000		132¾	
Louisville G. L. Co., Louis., Ky.			127	
Cincinnati G. L. Co , Cincin, O.				200
St. Louis G. L. Co		50		160
Laclede G. L. Co., St. Louis, Mo.		100	100	105
Carondelet G. L. Co., Mo		50		63¾
S. F. G. L. Co. San Francisco, Cal	10,000,000	100	97	98¾
City G. L. Co. Montreal, Can.	1,440,000	40	1 0	140¾
Consumers G. L (old.) Tor., Ont	600,000	50	132	
Hamilton G. L. Co., Ont.	150,000	40	112½	
Halifax G. L. Co., Halifax, N.S.	400,000	40	149	

* These quotations represent the latest obtainable prices at which sales were made.

† This Company has issued $1,000,000 in certificates in addition to their stock indebtedness, on which they pay interest at the rate of 6 per cent. gold.

‡ This Company has $30 000 in bonds outstanding.

§ $200,000 represents the bonded indebtedness of this Company; these bonds have recently been offered at 90.

‖ 20 shares of this stock was sold at auction during the week at our quotation.

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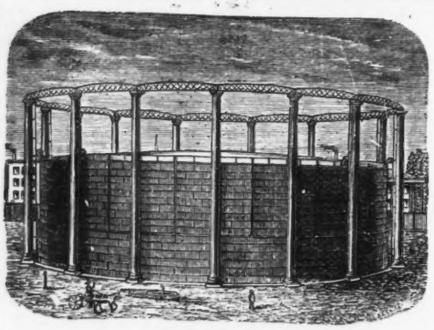

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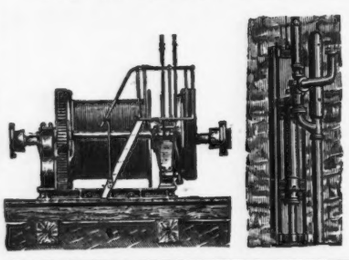

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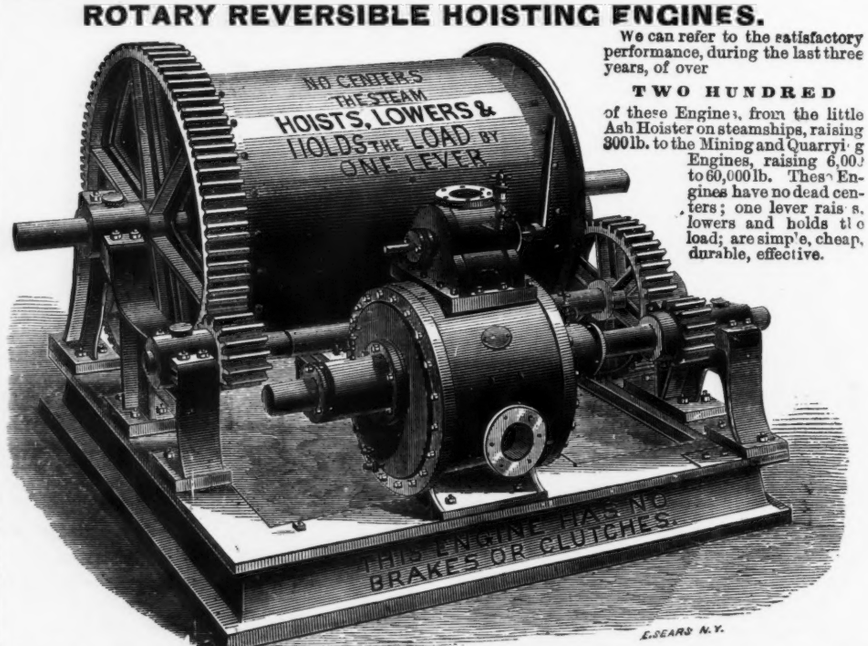

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